First Copy

A National Newspaper for Every Branch of the Industry

Automotive Daily News

CARS · SHOP EQUIPMENT · TRUCKS · AVIATION · PARTS · ACCESSORIES · TIRES

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Motor Taxes Averaged $33.09 Per Motor Vehicle In the U. S. During 1930

Gasoline Taxes Alone Amounted to $19.68 Per Car; License and Registration Cost Additional $13.41

WASHINGTON, July 17.—Each motorist in the United States during 1930 paid an average of $33.09 taxes incident to the operation of his automobile, according to data compiled by the American Motorists Association. The average gasoline tax was $19.68. Miscellaneous taxes, such as registrations, tags, permits, etc., averaged $13.41 per registered motor vehicle.

Motorists of Oregon, paying an average of $64, paid the largest per capita tax, followed by Florida motorists, with an average of $53, and Georgia motorists paying $52 each in 1930. Motorists of the District of Columbia, Massachusetts and Utah paid the smallest taxes. In the District of Columbia, the smallest of any state, the average was $14. In Massachusetts, the average was $20, and in Utah, $25.

Following is the detailed analysis, made by the A. M. A., showing the

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CANADA LOOKS FOR LOWER CAR PRICES DUE TO NEW TARIFF

Toronto, Canada, July 17.—Motor car prices in Canada should come down rather than be increased under the new tariff, Premier Bennett declared in the House of Commons at Ottawa, when Liberals and Progressives attacked the item raising the duty on automobiles of certain classes.

Mr. Bennett pointed out that there was no change in the duty on cars of up to $1,200 in price. On the next class, priced from $1,200 to $2,100, the incerase was only 2½ per cent. A more substantial increase was made in the duty on higher-priced cars above $2,100.

He stressed the fact that provision is made in the new tariff for the free entry of a larger number of automobile parts. "Thereby," he added, "in my judgment, making provision for a reduction rather than an increase in price."

No mention was made by the premier of the 20 per cent. discount limitation placed on imported cars for duty purposes, which has resulted in an increase in the price of these cars in Canada. Producers of cars in Canada are of the opinion, that, irrespective of any tariff change on parts, prices will of necessity be higher next season be-

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July Sales Exceed Last Year In Three Important Centers

Los Angeles, San Francisco and St. Paul Show Gains; Early Reports Indicate Continuance Of Demand

NEW YORK, July 17.—To get a line on the course of sales during July, Automotive Daily News has conducted a telegraphic survey of sales in key cities throughout the country. These figures disclose some very interesting developments. In the cities which have so far reported, Los Angeles and San Francisco, Cal., both showed an increase over figures for the same period last year, as did St. Paul, or rather Ramsay county, in which that city is located. San Antonio showed a slight decrease and Cleveland appears to have lost considerable ground in the number of units registered during the first half of July.

From the returns so far received, there would appear to be some ground for the frequently expressed hope that the buying season this year would be extended over a longer period than usual, though obviously this applies only in part of the cases.

San Francisco reports sale for the first eleven days of July of 446 passenger cars and trucks. This compares with 388 units in the same period of July, 1930.

Los Angeles reports that up to July 10 sales this year totaled 858 passenger and commercial vehicles. Last year the total was 699 units for the first ten days of July.

In Ramsey County in which is located the city of St. Paul, Minn., total sales up to July 15 were 615 passenger cars and trucks, while in the first half of July, 1930, the total was 570 units.

Louisville, Ky., reports sales of 316 motor vehicles up to July 15, but unfortunately no figures are available for comparison with last year's similar period.

San Antonio, Tex., quotes 213 as the number of passenger cars sold during the first half of July, with 29 trucks and 340 used vehicles of both kinds. Last year in the first fifteen days of July passenger car

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E. G. BUDD SHOWS STRONG FINANCIAL POSITION IN 1ST HALF

Philadelphia, Pa., July 17.—The financial statement of the Edward G. Budd Manufacturing Company for the first half of this year reflects a very strong cash position and shows net earnings for the six months of $130,565. The company's earnings were $102,545 for the second quarter of this year, as compared with $28,020 for the first quarter. These figures compare with $20,691 earned for the twelve months of 1930.

Cash on hand as of June 30, 1931, amounted to $2,296,856, an increase of $526,173 over the cash balance of January 1, 1931. The company's current assets as of June 30, 1931, totaled $6,485,210, more than twelve times current liabilities of $511,838.

Within the last few weeks the company has booked a considerable volume of new stamping business for production early in the fall.

BANKER URGES BANKABLE DEALER-FACTORY CONTRACTS

ST. PAUL, Minn., July 17.—Contracts between retail automobile dealers and manufacturers should be drawn so as to provide real bankable values, George Susens, secretary-manager of the Minnesota Bankers' Association, said this week at a meeting of the Minnesota Motor Trades Association in the Hotel Lowry.

More than 150 automobile dealers and representatives of associated trades attended the meeting which was preceded by a dinner at 7 p. m. James Dalton, of New York, editor of Motor, automobile trade magazine, and J. P. Bengston, assistant secretary of state in charge of automobile registration, spoke.

"Automotive manufacturers and distributors," Mr. Susens said, "cannot hope for the full co-operation of the bankers until the contracts which they give their retail dealers are made to contain some real bankable values.

"As most of these contracts are drawn today, they are entirely for the benefit of the manufacturer or distributor. They are cancellable by the manuufacturer for various minor infractions of rules laid down by the makers, almost without notice, and therefore cannot be considered as collateral by the banks."

Mr. Dalton said conditions in the automobile industry in the Northwest were much better than in many other sections of the country. Mr. Bengston talked on the work of his department.

2 AUTOMOBILE MAKERS BUYING STEEL FREELY

Chicago, July 17.—Chicago steel makers report the purchase of considerable steel for the manufacture of the Plymouth automobile. The Nash Motor Company is also specifying steadily, its 1932 model now being upon the market.

S. O. OF INDIANA WILL DISCONTNUE LOANING EQUIPMENT

Chicago, July 17.—Effective August 1, the Standard Oil Company of Indiana will discontinue installing, loaning, or leasing service station equipment to resellers.

Announcement of this change in marketing policy was made today at the company's general offices. Officials explained that under competitive conditions it has become customary for oil companies or other wholesalers to provide to retailers most of the equipment needed for dispensing gasoline or servicing motor cars. This practice has long been regarded in the oil industry as unsound economically in that it has encouraged multiplicity of outlets far beyond consumer needs, with consequent waste in marketing costs.

The Indiana company's disconuance of the practice, officials said, is undertaken in an effort to put its wholesale business on a basis of straight commodity selling. The new

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Late News Flashes

Detroit, July 17.—R. L. Polk & Co. announced today that registration figures had been received from twenty-five states and the District of Columbia for June. The total for June, 1931, is 89,250 passenger cars, while in May of this year those same states sold 113,915 units and in June, 1930, the total was 121,204. The decrease under May was at the rate of 21.6 per cent. and that under June last year was 26.3.

* * *

Allentown, Pa., July 17.—Norman H. Halliday, vice-president of Mack-International, died here yesterday after a brief illness.

* * *

Detroit, July 17.—At the close of the July directors meeting Alfred Reeves, general manager of the N. A. C. C., announced that his organization will sanction automobile salons in New York and Chicago, if the dealers who have applied for sanction will conduct the affairs under the proper rules and regulations. The likelihood of this action was first foreshadowed in Automotive Daily News some days ago.

Steamer Line to Operate Truck Service in Boston

BOSTON, Mass., July 17.—The Eastern Steamship Lines will operate a fleet of motor trucks between inland New England cities and its Boston pier, opening a service by which freight will be carried to and from New York in its coastwise steamers at lower rates than are now available on the all-rail route.

The new service will be effective next Friday and the differential below the railroad rates will range from 5 cents per 100 pounds on freight classified as first class to 1 cent per 100 pounds on sixth class freight. Commodity rates will be reduced proportionately and rates on textiles from Lowell, Manchester, Lawrence and other cities will be carried at 3 cents per 100 pounds less than rail rates.

The trucks will carry freight to India Wharf in Boston every day in time for loading on the steamer which leaves every afternoon at 5 o'clock and arrives in New York the following morning at 7 o'clock. Freight from New York to points in New England will also be hurried to its destination by truck on arrival in Boston.

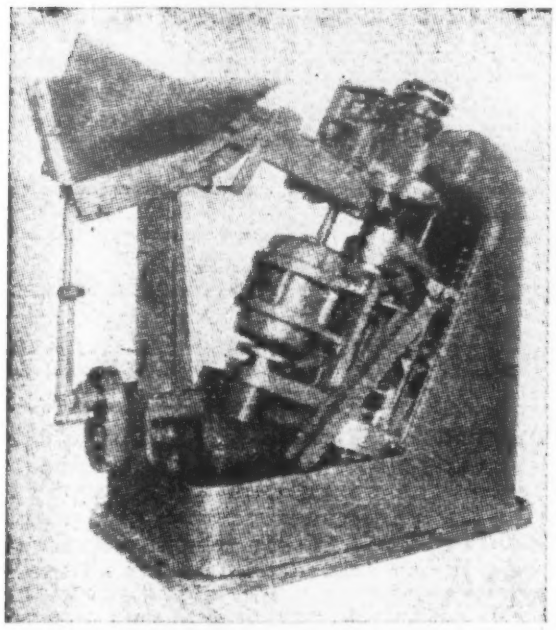
Capt. Eugene E. O'Donnell, president of the Eastern Lines, emphasized yesterday that the company would not reduce wages despite the reduction in its freight rates. He said that he expected the improved service would result eventually in the addition of extra boats and would be a "prosperity move" in New England.

"The new rates," he said, "mean

(Continued on Page 6)

Latest Trend in Factory Equipment in This Issue

2 New Pointing Machines Announced



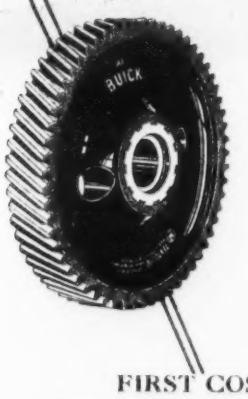
ECONOMY Type B pointing machine

Two automatic pointing machines of ½ and ¾ in. capacity, respectively, have been placed on the market by the Economy Engineering Company, Willoughby, O. The Type B ½ in. machine will point bolts and cap-screws of ⅜ to ½ in. in diameter and any length from ¾ to 4 in. Operation of the machine is fully automatic. The blank is gripped at the pointing station, where the pointing head comes forward, automatically pointing or chamfering the piece, after which it is dropped into the receptacle. The pieces are delivered at the rate of 2,000 to 3,000 per hour, depending on the size. One operator attends five machines. Either belt or motor drive can be furnished. The net weight of the machine is 2,000 lbs.

The Type BA ¾ in. machine is of such design that the roulette and pointing spindle are on the same angle as the hopper chute to facilitate feeding.

Production rates of 1,800 to 3,500 pointed pieces per hour can be obtained, it is claimed, depending on the size and material. Bolts or cap-screws from ¼ to ¾ in. diameter and from 1 to 6 in. in length are handled.

TEXTOLITE
TIMING GEARS



FIRST COST vs. GOOD WILL

A manufacturer with the long-range view will not put into his job a short-lived device if he knows that he can get something else that will last longer and give greater owner satisfaction.

This policy is dictated today when original purchasers expect 40,000 to 50,000 miles of use and when the value of the used car has such a dominating effect on the entire market.

The car owner probably neither knows nor cares anything about his timing drive; but if it is a nonmetallic gear, on which he has spent nothing for adjustment and replacement, while still enjoying its quietness and original accurate timing, the result goes into his general good will for the manufacturer.

There is no compromise with accuracy in a good gear drive. It is a token of good manufacture throughout the car.

JOIN US IN THE GENERAL ELECTRIC PROGRAM, BROADCAST EVERY SATURDAY EVENING ON A NATION-WIDE N. B. C. NETWORK 830-78

GENERAL ELECTRIC

GENERAL ELECTRIC COMPANY, SCHENECTADY, N. Y., SALES OFFICES IN PRINCIPAL CITIES

FORD PRODUCTION IN JUNE PLACED AT 78,000, 30% OF TOTAL

New York, July 17.—Ford production in June, estimated at 78,000 cars and trucks, accounted for approximately 30.6 per cent. of the total output for the month, as compared with 30.2 per cent. in May, when Ford turned out 102,095 units. In June, 1930, Ford built approximately 174,000 vehicles, equivalent to just half of the total production of the industry in that month.

For the first six months of this year Ford made 537,312 cars and trucks, on the basis of the 78,000 estimate for June, which was equal to 32.9 per cent. of the total production of the industry in that period, amounting to 1,633,000. The June output for the industry has been estimated by National Automobile Chamber of Commerce at just under 255,000.

Ford reached its peak in the first half of this year in April, when 117,891 vehicles rolled off the assembly line, as compared with 206,340 units in the corresponding month of last year, also the peak period for the first six months of 1930. Ford's share of the total output in April of this year was 33.7 per cent., as against 44 per cent. in 1930.

The following tables show Ford's production in the first half of this year and last, with the percentages of the total for each month indicated:—

1931		% of Total
January	55,182	30.9
February	85,109	37.1
March	99,035	34.3
April	117,891	33.7
May	102,095	30.2
June	*78,000	30.6
Totals	537,312	32.9

*Estimated.

1930		
January	98,529	34.8
February	131,747	38.0
March	169,045	40.5
April	206,340	44.0
May	191,431	43.0
June	174,000	50.0
Totals	971,092	41.5

CHECKER CAB PROFITS GAIN; NET INCOME OFF

New York, July 17.—Net profit of the Checker Cab Manufacturing Company in the three months ended June 30 was approximately $70,000. Morris Markin, president, said at the stockholders' annual meeting. Net profit in the first quarter was $665, making approximately $70,665 for the first six months of this year. This compared with $105,020, equal to 28 cents a share, in the first six months of 1930.

Henry Weiss, president of the Checker Cab Sales Corporation, was chosen a director. Retiring directors were re-elected.

GEORGIA MOTOR CARRIERS TAX HELD VALID IN TEST

Atlanta, Ga., July 17.—Superior Court Judge G. H. Howard has just handed down a ruling to the effect that the 1931 motor carriers' tax passed at the special session of the Georgia general assembly is valid and constitutional.

Possibility that the fight against the tax may be taken into the United States Supreme Court was foreseen this week as attorneys for a number of bus lines prepared to appeal the case. Motor bus and truck operators of the state have waged a vigorous battle against the tax on the grounds that it was confiscatory and discriminating.

ECLIPSE MACHINE MOVES OFFICES TO DETROIT

Detroit, Mich., July 17. — The Eclipse Machine Company has moved its office from 1342 Book Building, Elmira, N. Y., to 8-205 General Motors Building, Detroit, Mich.

SPARKS from DETROIT

Willys Cops More Records

* * *

What Is a Dry Lake?

* * *

Plymouth Plant Expands

* * *

Ford Eight to Aid Lincoln

Chris Sinsabaugh—Detroit Editor

JUST the same, while none of the American automobile manufacturers any longer support racing, yet most of them like to prove the speed they have put into their product. Witness Studebaker's sensational Atlantic Speedway record drive, when all long distance records were smashed. Take it at Indianapolis this year, where near-stock cars, silently backed by some of the prominent makers, made such a gallant showing. Look at intercity and transcontinental marks that have been set up.

Willys-Overland is one that seems justly proud of what its six-cylinder job can do with the accelerator pressed to the footboards. Not satisfied with the five new American records for the 183-305-inch piston displacement class (the Willys six measures 193), the company is officially credited by the A. A. A. with creating ten more the other day at Muroc Dry Lake, California, the gem of the collection being the 500-mark of 70.2988 m. p. h., beating the old record by 6.21 m. p. h. Counting in the Pikes Peak climb, the Toledo outfit now has sixteen records as proof of the speed and stamina of its low-priced six.

* * *

MAYBE you are like I was—curious to know more about this Muroc Dry Lake where such speeds are possible. I know all about Daytona Beach, of course, and so do you, but until I ran into Lew Miller, Dodge district manager from San Francisco, Muroc Dry Lake was just a name, nothing more. Now I am surprised to learn that in the opinion of Miller the California natural speedway is faster than the Florida sand beach. Only you can't control the winds at Muroc and the A. A. A. rules require that all straightaway trials be both ways.

"Muroc Dry Lake is located 132 miles northeast of Los Angeles in the Mint Canyon," said Miller. "It is the lower end of Death Valley in the Mojave Desert. This natural race course is the bed of an old lake, eighteen miles long and from nine to twelve miles wide. The bed is of peculiar formation made up of volcanic ash, sand, silt and a lot of alkali. But the winds out there are terrific and would-be record breakers often have to wait days for favorable conditions. I have seen cars traveling at eighty miles per hour slowed to forty-five when they ran into this wind. Then, too, it is so hot there that you usually have to wait until evening to make your trials.

"To show you how freakish is the weather there, take the case of Dodge when it set out to do 50,000 miles in 50,000 minutes a few years back. At 22,905 miles, when we were 12 hours, 52 minutes ahead of the record, up came an unexpected snowstorm. We kept plugging along, however, and the next morning the sun came out so hot that all the snow melted and the entire bed of the old lake was covered by six inches of water, which of course forced us to quit."

* * *

BEFORE he became a Dodge district manager, Lew Miller was a prominent figure in transcontinental record-breaking. It was he who for three consecutive years broke the coast-to-coast mark for the round trip, twice in the Wills Ste. Claire and once in the Chrysler Imperial. He still holds it with 169 hours, 59 minutes from San Francisco to New York and back to Los Angeles, made in the Chrysler in 1927. Transcontinentaling comes easy for him, for in his bicycle racing days, when he was one of the stars, he took his vacations by making transcontinental trips on a bicycle, doing this for three consecutive years.

* * *

MERE executives count for nothing when it comes to interference with production. At least that is the way at De Soto-Plymouth. With the throttle wide open and every available inch needed by the production manager, it has been found necessary to find more room, so there is to be an important factory expansion which will take the form of a new building for the housing of the executives. Their room is better than their company, in the opinion of the worried production manager. Ground for the new structure, which will cost $130,000 and afford 30,000 additional feet of floor space, will be broken Monday.

* * *

THEY'RE saying that if Ford puts out an eight it will be a tail to the Lincoln kite; that is, it will be used to give

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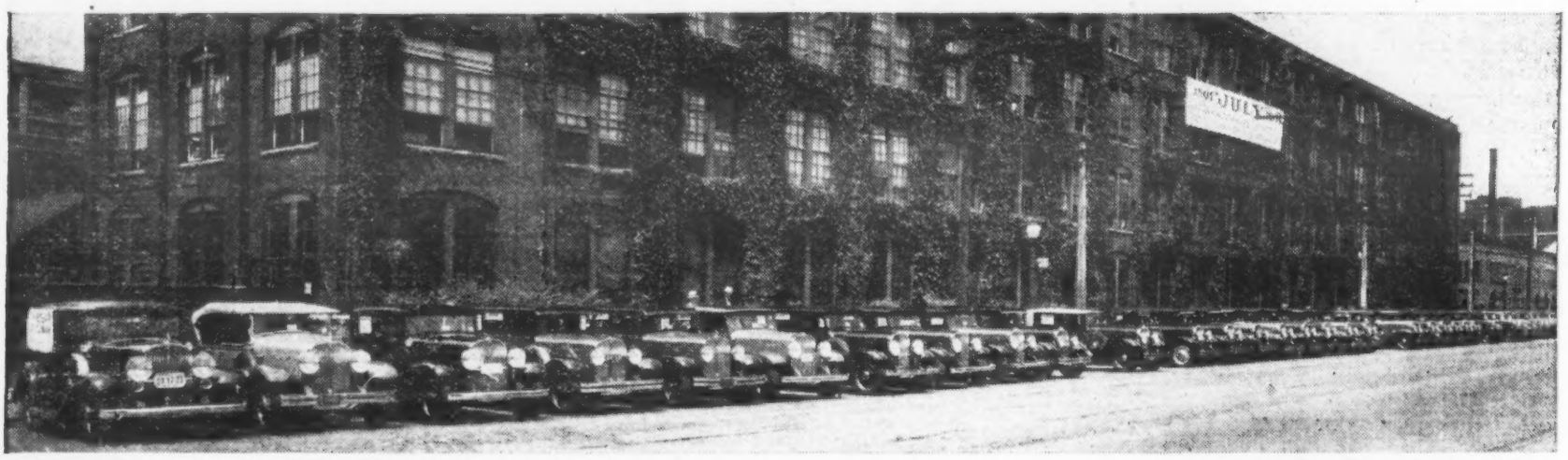
Franklin Driveaway Commemorates 30th Anniversary



Syracuse, N. Y., July 17.—Scores of Franklin dealers from all parts of the East and the Middle West arrived in Syracuse Wednesday to participate in the second biggest driveway in Franklin history. Each of these dealers drove home a new Series 15 Franklin in connection with the celebration by the Franklin factory this month of its thirtieth anniversary.

Franklin executives met the dealers as they alighted from Pullmans and the large delegation was driven in cars to Drumlins', where a complimentary breakfast was tendered by the factory sales department. Remarks were made by John E. Williams, vice-president in charge of sales, and by Advertising Manager Hugh H. Goodhart. During the breakfast factory officials disclosed that Franklin retail deliveries have been increasing steadily in recent weeks.

Following the breakfast the delegation returned to the Franklin factory, where each dealer found his new car waiting for him in a long line of cars which surrounded the entire block on each side of the Franklin factory. A large sign across the Geddes Street side of the office building called attention to "Anniversary Month" and to Franklin's thirty years of air-cooled progress. Vice-President Williams acted as official starter of the mile-long parade of cars which, under police escort, was piloted through the downtown business streets before each dealer started for home.

Among the dealers present were a number who have been associated with the company almost from its inception.

Meet the Sales Chiefs

GEORGE C. TENNEY, general sales director of the Marmon Motor Car Company, has been associated with the automotive industry for nearly fifteen years, and has held a number of important positions with the automobile manufacturers.

Mr. Tenney came to Marmon in August, 1928, as a district manager in the New England territory. In January, 1930, he was appointed sales manager, and in June of the same year was advanced to the position of general sales director.

Mr. Tenney was graduated from the Stevens Institute of Technology, Hoboken, N. J., in 1911, and after five years of mechanical engineering entered the automobile business, in which he has been associated ever since, with the exception of the time he was in the service of the United States Army during the war. He joined the army in May, 1917, and retired as a captain in February, 1919. During part of this time he was supervisor of ordnance in Canada for the United States Army.

After leaving the army, Mr. Tenney joined the Daniels Motor Company of Reading, Pa., and remained with that company until 1924, when he joined the Locomobile organization. He was assistant to the president at Daniels, and from 1926 until joining Marmon, was general sales manager of Locomobile.

MASON, DEALER DEAN, OBSERVES BIRTHDAY

Newark, N. J., July 17.—P. W. Mason, dean of automobile dealers in this city, is celebrating his sixty-ninth birthday. Mr. Mason has been buying and selling cars in this city since 1900. He opened his own dealership in the autum of 1906, handling the Maxwell-Briscoe. Now, with his two sons, he has one of Newark's largest dealerships at 360 Central Ave., handling the Peerless, Cord, Auburn, Oakland and Pontiac cars.

BUYS ILLINOIS FIRM

Ottumwa, Ia., July 17.—L. R. Bristow, Ford dealer here, has acquired interests of W. C. McCulloch in the Mackemer Motor Company in Galesburg, Ill., and assumed management of both concerns. The Mackemer name will be retained by the Galesburg dealership under Mr. Bristow's direction.

CHEVROLET DEALER EXPANDS

Osage, Ia., July 17.—Vaughan & Raub, authorized Chevrolet dealer in this and surrounding territory, has purchased property adjacent to its present place of business which will give it a half block in the main business section of the city. Plans are under way for enlarging the present building.

INTERNATIONAL ROAD SHOW OPENS MONDAY ON COAST

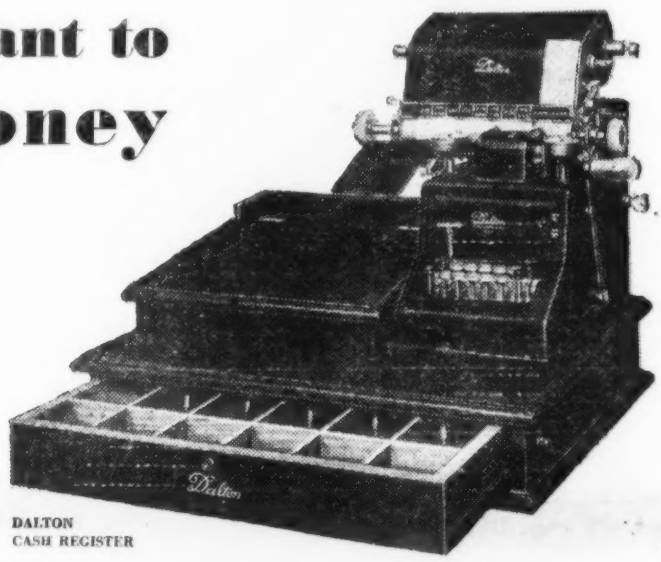
Los Angeles, July 17.—Plans have been completed for holding the International Road Machinery Exposition at Alameda Boulevard and 131st Street the week beginning July 20. All types of road machinery will be displayed.

In conjunction with the exposition there will be technical conferences by Associated General Contractors, Western States County Officials' Association, and a group of road machinery exporters.

ARMSTRONG CORK COMBINES ALL CINCINNATI BRANCHES

Cincinnati, O., July 17.—All the Cincinnati branch sales offices and warehouses of the Armstrong Cork Company, manufacturers of linoleum, rugs, insulation materials and all kinds of cork products, are to be consolidated at 232 West 7th St. The move, which brings together sales divisions that have previously maintained separate offices, will be completed by July 20.

If you want to save money



DALTON CASH REGISTER

this

DALTON *will help you do it*

A DALTON Cash Register is a complete "bookkeeping department" in itself. It draws no salary, cannot make costly errors, and provides you with a daily operating record.

Simple to operate, it gives you a record of sales and expenses by departments. Ten keys swiftly and accurately provide addition, subtraction, multiplication, and division *at any time* without disturbing the cash record registered.

Put it to work for you. Let it save you dollars and unnecessary worries. Talk to the Dalton representative in your city about it. He will convincingly show you how the Dalton will help you save money that is now slipping through your fingers.

Dalton Division

Remington Rand

BUSINESS SERVICE

BUFFALO, NEW YORK

I want to know how the Dalton Cash Register can reduce my overhead and put more money in my pocket. A. D. N.-7

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Automotive Daily News

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Arresting the Slow Pokes

CALIFORNIA has just acquired a brand new traffic law which has at least one innovation that will be of general interest. This is a section which forbids driving at a speed so slow that the reasonable flow of traffic is retarded. Traffic officers are given authority to enforce this section of the traffic law. This means simply that they may arrest drivers who persist in poking along and holding up the movement of other vehicles on the road.

In so far as we know, this is the first time a state legislature has made public acknowledgement of the fact that fast driving per se is not the cause of accidents. Danger in driving a car is created by conditions rather than speed.

California has taken another step forward by lifting the maximum speed permitted in open country to between forty and forty-five miles per hour. There was a somewhat acrimonious debate in the Legislature as to whether the set speed limit should not be eliminated altogether. The conservatives won but the liberals were able to force the higher limit.

Reforms come slowly, if they are to be worth anything, and at last we are beginning to get a general agreement that higher speed limits, when conditions justify, are perfectly safe. Some few states have taken off the set limit altogether. Unless we are mistaken, Robbins B. Stoeckel, motor vehicle commissioner of Connecticut, was the first to take this logical step. With the speed limit removed, every motor vehicle operator is held responsible for safe and cautious operation of his car or truck at all times. The result in Connecticut has been entirely satisfactory. Instead of increasing accidents, the no-speed-limit law has decreased them.

We recommend to other states consideration of California's idea in making slow driving an offense under the law, where conditions make it dangerous.

Two Kinds of Service

SOME days ago we had occasion to take a car into its natural service station in one of the large Eastern cities. The vehicle is a popular make, with an excellent name behind it. The repair to be made was to the fuel pump. Half an hour would be a generous allowance for the time actually consumed in putting in the new part that was needed.

This service station gave every outward appearance of being well run. It was neat; we were greeted by a courteous employee, to whom we explained what we needed, asking if the station would make the repair for us.

"Yes, indeed," he assured us, "drive your care in there," indicating a corner of the yard, "and we will attend to it as soon as possible."

"How soon do you think you can have it ready for me?" we asked.

"Oh, about 7 o'clock," replied the service man. It was then 2 o'clock of a Saturday afternoon, with the car owner anxious to get under way for a week end in the country.

"Good heavens," we almost shouted. "This repair will only take about twenty minutes. Can't you do better than 7 o'clock with it?"

"No," answered the service man, "we don't keep parts for the pump. We will have to send down to the Blank (the manufacturer's) place for them and that will take at least an hour because I haven't a man to send at the moment. Then there are a lot of cars ahead of you and 7 o'clock is the best I can promise."

We chanced to know of an alley garage in the neighborhood, run by an old mechanic who had done work for us before. The place was somewhat dingy and our friend the mechanic greeted us in greasy overalls. But when we asked about our job, the proprietor grinned: "Sure, I'll go and get the part and have the job done in an hour."

He did. Now what is wrong with that picture? We give you three guesses.

J. M. NAYE HEADS MOTOR TRUCK GROUP; SEEK UNIFORM LAW

Atlantic City, N. J., July 17.—James M. Naye of Philadelphia was elected president of the National Team and Motor Truck Owners' Association at its twenty-ninth annual convention at the Hotel Chelsea here. He succeeds J. J. McHugh of Cincinnati.

Other officers chosen were: H. H. Barton, Kansas City, first vice-president; Foster Moreton, Detroit, second vice-president, and William J. McDevitt, Cincinnati, treasurer.

W. A. Sutherland of Philadelphia, president of the Pennsylvania Team and Motor Truck Owners' Association, urged the members to advocate uniform motor laws throughout the country, declaring that interstate truck travel was hampered by varying legislation in each state.

Twenty-three of the 154 members of the association represent an investment in their business of $2,388,358, it was stated by Harry B. Rubey of Cincinnati, secretary of the association.

"These twenty-three members own 444 motor trucks and 117 trailers," he continued. "This information was gathered should it seem advisable to appear before the I. C. C. on the subject of motor rail coordination."

Following Mr. Rubey's report, new memberships were discussed, and it was determined to put an intensive campaign to that end into effect immediately.

Mr. McHugh of Cincinnati in his opening address stressed the vital need for an enlarged membership, but discouraged any possible increase in dues.

Miss Kathleen O'Brien is the only woman member of the association Miss O'Brien heads J. Spahn & Co., cartage contractors, Chicago. She thinks the trucking business is a good one for women; that the feminine touch is new enough to be impressive at the present time.

"Women are a little more patient than men," she said, "and patience is not characteristic of men in the trucking business. There is a certain courtesy that women can introduce into the business which should be welcome."

Judge Harold B. Wells, of Burlington addressed the delegates at the annual banquet. Joseph P. Cavanaugh of Philadelphia was toastmaster.

UNITED LENS OFFERS DUAL BEAM LAMP SERVICE

Detroit, July 17.—The United Lens Corporation, which succeeded the old Monogram Lens Corporation on May 1, in addition to the old products carried by Monogram, now services Depress Beam lenses, formerly supplied by the C. M. Hall Lamp Company; Parabeam lenses, formerly supplied by the John W. Brown Manufacturing Company of Columbus, O., and the C. M. Hall Lamp Company of this city, and Stabilite lenses, formerly furnished by the John W. Brown Manufacturing Company.

Mr. Samuel F. Arbuckle, who was vice-president of the Monogram Lens Corporation, has succeeded to the presidency of the new concern.

COMING EVENTS

SEPTEMBER

1- 3—**Cleveland, O.** Hotel Statler, Society of Automotive Engineers, twentieth annual aeronautical meeting in conjunction with National Air races.
8-17—**Utrecht, Holland.** Utrecht Fair, bus and truck show.
16-17—**Atlantic City, N. J.** National Petroleum Association, annual meeting. Hotel Traymore.
20-26—**Springfield, Mass.** Eastern States Exposition.
21-25—**Boston, Mass.** American Welding Society, meeting.
28-29—**Atlantic City, N. J.** National Association of Motor Bus Operators, fifth annual meeting. Hotel Ambassador.
26-Oct. 2—**Atlantic City, N. J.** American Electric Railway Association, annual meeting.

OCTOBER

1-11—**Paris, France.** International Automobile Salon.
2- 3—**Houston, Tex.** American Institute of Mining and Metallurgical Engineers, petroleum division meeting.
12-16—**Chicago, Ill.** National Safety Council.
14-16—**Pittsburgh, Pa.** Society of Industrial Engineers, convention.
15-24—**London, England.** International Motor Exhibition, Olympia Hall.
22-28—**Prague, Czecho-Slovakia.** International Automobile Exposition.

Contemporary Comment

THE policy of American rubber manufacturers, particularly those in the tire industry, of establishing branch factories in foreign countries to secure an advantageous position over competitors in costs of distribution and labor, and the failure of the domestic manufacturers of other rubber goods to reap the benefits of combined effort in foreign trade, under the Webb-Pomerene act, were recently criticized by Everett G. Holt, chief of the rubber division of the Department of Commerce, in a talk before the members of the Akron Export Club at Akron on June 24.

There is no doubt that the decline in exports of rubber goods has been due, not alone to the general world depression, but in no small measure to the foreign manufacturing branches of several of the larger American concerns. Within the last few years there has been rush to set up factories in the leading foreign markets. There are obvious advantages in such a policy, but there are often several hidden disadvantages which make themselves felt in such economic periods of distress as we have been going through. Branch factories abroad do not necessarily hold the foreign market for the American manufacturer in times of depression, but in turn help to aggravate the situation at home by the displacement of labor and output which would have otherwise occupied the home factory. There is much to be said on both sides. Mr. Holt points out also that such export trade in tires as has held up through the depression has been due to the co-operation through the Webb-Pomerene export corporation, maintained by the leading tire companies and in spite of foreign branch factories. Mr. Holt has taken a courageous stand in calling attention to the disadvantages of export branch factories and it would be interesting to know the reaction of the leading tire executives to his remarks.

In urging the manufacturers of rubber goods other than tires to take advantage of co-operative effort through the organization of an export trade corporation under the Webb-Pomerene act, he also makes a very sound and constructive suggestion. Such operative effort for foreign trade could not but help materially in meeting foreign competition and in expanding the markets we already enjoy. Some of his remarks are well worth quoting here.

"Our export trade in tires," Mr. Holt said, "in spite of a growing number of foreign branch factories, has held up better than any other line. To a considerable degree I believe this is because most of the companies exporting tires co-operate through a Webb-Pomerene export corporation and have facilities through which to present a united front to foreign competitors. Not all difficulties are capable of solving through this corporation, but much has been accomplished in maintenance of uniform prices and policies.

"Those associated companies might be able some time to agree among themselves, perhaps in co-operation with leading foreign competitors, on a uniform policy regarding foreign branch factories. Facilities for producing tires sufficient for world needs exist to superfluity, but the desire to lower distribution costs and get inside the tariff barrier of certain large foreign markets is tempting and leads to further overcapacity. *Perhaps the time will come when the leading tire companies engaged in international trade will give consideration to an agreement not to establish branch factories in any additional countries.* (The italics are ours.)

"Tire manufacturing would not develop rapidly abroad without the backing of these leading companies; the technical problems involved make for concentration of production in the hands of companies with highly trained chemical, engineering and research staffs which small ventures could not possess. Retarding branch factory development would help to maintain production at a higher rate in the home factories of each company and give added domestic employment. There is another good reason for not carrying the branch factory idea too far, and that is the uncertainty of political security in some countries and the possibility of unforeseeable but very detrimental tariff changes and tax changes.

"Just as there has in recent years been a tendency to establish branch tire factories in foreign countries, there has been a similar tendency toward decentralization here, which has had the effect of shifting employment away from Akron to some degree. The prime purpose for establishing branch factories here or abroad is to get an advantage over competitors in costs of distribution and, incidentally, labor. It is certain that existing manufacturing facilities are already more than ample, and that the communities where the factories are now located need the employment, and also that decentralizing the industry further would not help Akron in any way."—**The Rubber Age.**

* * *

THE machine tool industry is waiting for orders, which probably will fail to come until there is a definite improvement in the general business situation. The general opinion is that there will be no revival of demand before September. A good many substantial orders are pending, but prospective purchasers are not likely to take action until their own businesses have improved.—**Iron Age.**

Equipment for the Modern Factory

Dynamometer Applications In Automobile Factories

By H. M. FRENCH
Industrial Engineering Department
General Electric Company,
Schenectady, N. Y.

The testing of, and measurement, of power developed by automobile engines has ever been one of the major parts of automobile manufacture. The development of the dynamometer for this work is one of the notable contributions of the electrical industry. Dynamometers are now used for testing automobile engines, transmisions, brakes, tires, fans and blowers, centrifugal pumps, steam turbines, etc. This article, however, will deal only with the application of dynamometers to the automobile field.

Probably the first important device designed to measure the shaft output of an engine was the prony brake. This consisted of an adjustable brake band mounted on a pulley and rigidly secured to a lever arm of known length. The turning moment on the brake band was retained and measured by a scale, and knowing the pounds pull and speed the operator could then determine the horse power output of the engine. Obviously, this device does not lend itself readily to the continuous absorption of any large amount of power, and this fact led to the development of dynamometers to meet the demands for production testing of engines.

There are two general classes of dynamometers, electric and hydraulic. Electric dynamometers are further subdivided into cradled and block test units.

ELECTRIC DYNAMOMETERS

The cradled machine is by far the more accurate of the two types, being accurate within ½ of 1 per cent. Like a motor or generator, it consists of an armature and a field structure. The armature shaft is supported in ball bearings in the end brackets. The end brackets are further mounted in ball bearings. This leaves both elements free to rotate. The electro-magnetic reaction of the internally revolving armature on the field poles tends to rotate the frame. The turning moment thus developed is exactly equal to the torque applied at the shaft and is measured by scales attached to the field frame. The distance from the scale connection to the center line of the shaft is so proportioned that the familiar prony brake formula $\frac{2\,Pi\,(PLN)}{33000}$ becomes $\frac{\text{Lb. Pull} \times \text{RPM}}{K}$, K being 2000, 3000, etc., depending on the length of the arm. The power represented as the product of pounds pull on the scale and speed thus requires no correction for efficiency. The electric dynamometer can be operated either as a motor or generator. The usual operating voltages are 250 as a generator and 230 as a motor or 125 and 115 at correspondingly reduced speeds and outputs.

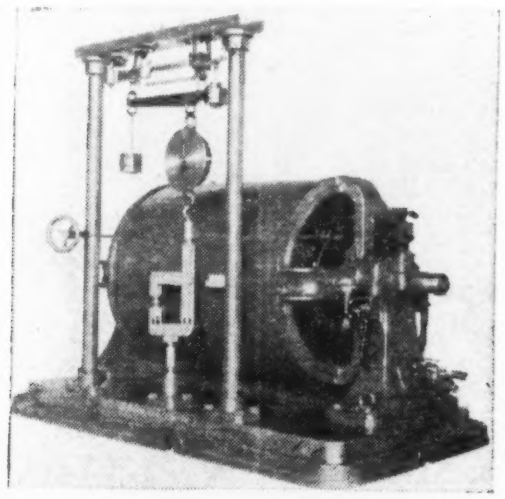


FIG. 1. G. E. type TLC-74, 200 h. p., 1,350-3,500 r. p. m., 250 volt d. c. dynamometer

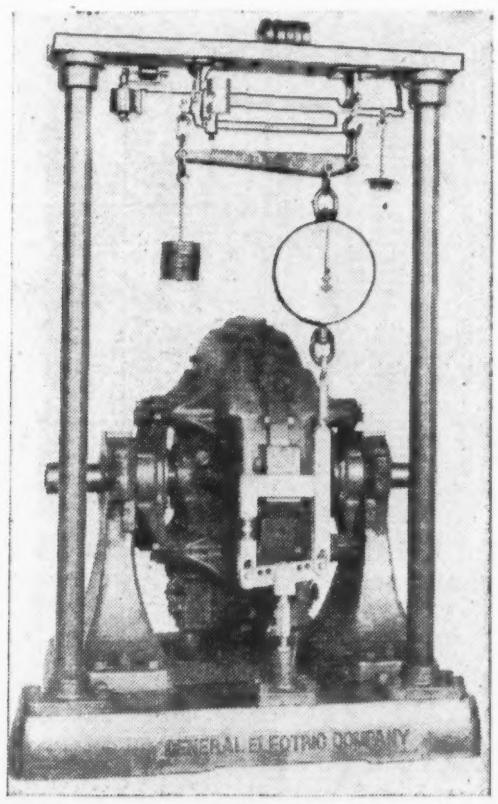


FIG. 2. G. E. type M-4A hydraulic dynamometer

Block Test Dynamometers

This type of dynamometer is used chiefly for production testing of engines. Accurate determination of power developed is not essential. Standard general purpose direct current motor construction is generally used. For high speed testing the high speed armature is required, and thus it is customary to use a standard cradled machine with minor modifications. Like cradled units, block test dynamometers are usually operated at 250 volts. The machines are shunt wound and connected for separate excitation. Speed ranges of 3:1 are usually observed, since operation at higher ratios often results in unstable operation.

HYDRAULIC DYNAMOMETERS

The hydraulic dynamometer consists of a housing filled with water in which one or more disks are rotated. These disks are so designed that rotation is impeded by the water. The frame is cradled so that standard torque measuring instruments can be used.

The hydraulic dynamometer is not as accurate as the electric unit. Other disadvantages include: inability to operate as a motor, dissipation of power as heat instead of useful work, limited range of operation and the necessity for a large flow of water. Offset to these are a lower first cost and higher capacities over a limited speed range.

CONTROL

The control equipment required for use with cradled dynamometers consists of a line contactor, variable resistors, for starting as a motor or loading as a generator, a load contactor for connecting the resistor across the armature for generator operation, and a circuit breaker in the armature circuit.

For operation as a motor, the line switch is left open and the line contactor is closed with all resistance in the field circuit. The dynamometer is brought up to speed by cutting out armature resistance. With full-line voltage across the dynamometer armature, the speed may be increased to maximum by weakening the dynamometer field and increasing the resistance in the field circuit.

For operation as a generator, the line contactor is left open, the load contactor is closed and power is pumped into the variable resistance. Pumping back into the line is accomplished by leaving the line contactor closed and opening the load contactor.

Control for the block test dyna-

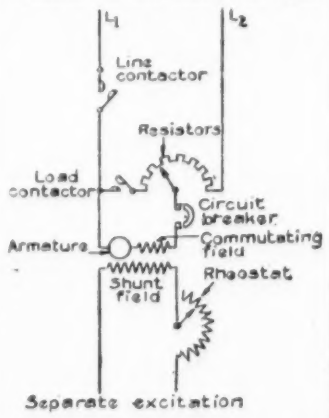


FIG. 3. Schematic diagram of control used with electric dynamometer

mometer consists of a line contactor, dial switch and resistor for motor starting and generator operation, field rheostat for adjustment of load as a generator and operation above basic speed as a motor, ignition switch for battery and magneto,

(Continued on Page 8)

Large Chip Capacity in New Cleveland Multiple Spindle Machine

The new ⅞-inch multiple spindle machine has been recently introduced by the Cleveland Automatic Machine Company, Cleveland, O.

The bed frame is of the arch-type construction, supported at both ends and securely doweled and bolted to the pan. This type of construction leaves an unobstructed opening through the center of the bed, through which the chips fall to the pan below, and more than doubles the former chip capacity, it is claimed.

A large opening in the bed under the spindle head permits the easy removal of chips, or, if more convenient, they can be removed from the back of the machine, where the pan is flared out for this purpose.

The cutting lubricant passes through a strainer at the feed end of the machine to the first reservoir in the pan, where any foreign substance settles, while the clear lubricant passes over a baffle wall to the second reservoir and is then pumped to the cutting tools.

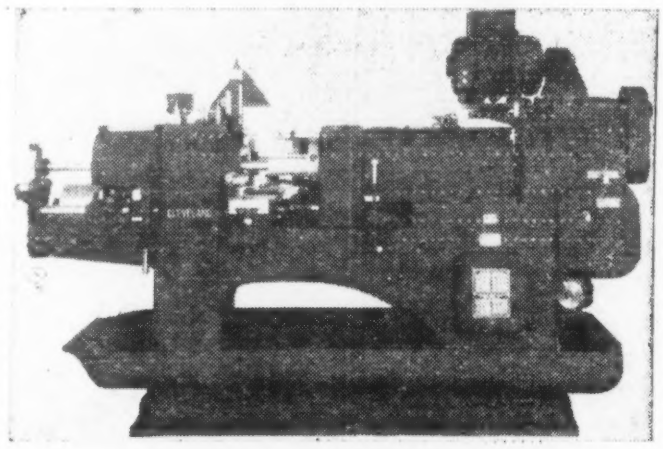
The power for driving the machine is transmitted through a friction clutch mounted in the drive head bracket, provided with a lever to stop and start the machine. The operating levers control the movement of the die and reamer spindles have their fulcrums in a master bracket bolted in the bed frame and are actuated by cams mounted on the operating drum, making them independent of the tool turret feed. The reaming spindle is non-revolving and is actuated by segment gears, the one carried on the operating shaft meshing with a smaller gear fastened on the operating lever.

The die spindle is revolving and provided with two gear ratios. It is self-contained and is arranged with a positive trip-off at the end of the tapping stroke, making it possible to hold to close dimensions between the end of the tap and shoulder of the work being tapped. Extra spindles can be installed in the tool turrent and operated from the same bracket by the addition of extra levers and spindles. The tool feed and spindle speed change gears are located at the feed end of the machine and covered by swinging doors. All gears are helical type, made from hardened alloy steel.

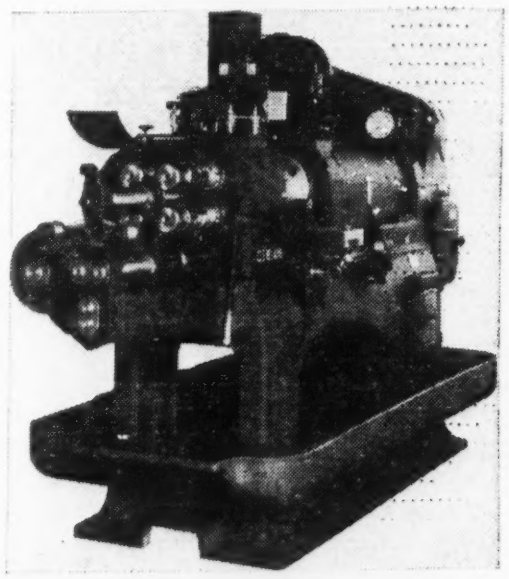
The tool feed and high speed indexing movement are independent and controlled by trip pins carried in T slots at the face of the worm wheel. The feed control lever is mounted in the center of the bed at the right of the operating position.

The worm wheel is a free member that is mounted on a large disc which is keyed to the main camshaft. The safety pin, which shears under overload, forms the driver between the worm wheel and the disc.

The gauge stop is mounted in the bed of the machine between the spindle and tool turret housing and swings into gauging position during the indexing of the spindle turret, permitting free use of the lower rear or fourth position for cutting



FRONT VIEW of Cleveland multiple spindle machine



END VIEW of Cleveland multiple spindle machine, showing large chip space under bed of machine

(Continued on Page 6)

For Other Factory Equipment See Pages 8, 9

July Sales Top Last Year In 3 Important Cities

(Coninued from Page 1)

sales totaled 245, with 41 trucks and 533 used units of both types.

During the first half of July, this year, 1,020 passenger cars and trucks were sold in the city of Cleveland, O., and 4,410 used vehicles were also disposed of. We have no figures for this city for the first half of July, last year, but we do know that during the entire month of July, 1930, 3,118 passenger cars and trucks were sold and 11,100 used vehicles. From this it is evident that Cleveland will run somewhat behind last year's record of sales for the entire month of July.

It may be well to call attention here to the fact that city sales this year have held up better than sales in the rural districts. Evidently, even though total city sales will probably fall behind those of last year, July will follow the June precedent of seeing the urban districts make a better showing comparatively than the farming regions. In certain sections it is reasonably certain that city sales are on the upgrade.

AUTOMOBILE TAXES AVERAGE OF $33.09 PER CAR IN U. S.

(Continued from Page 1)

average gasoline tax, the general tax and the total tax in each state:

State	Gas Tax	Gen. Tax	Total Tax
Alabama	$24	$13	$37
Arizona	24	6	30
Arkansas	28	19	47
California	19	4	23
Colorado	22	6	28
Connecticut	13	25	38
Delaware	27	19	46
Dist. of Columbia	10	4	14
Florida	42	11	53
Georgia	39	13	52
Idaho	25	16	41
Illinois	17	11	28
Indiana	21	7	28
Iowa	15	16	31
Kansas	19	10	29
Kentucky	25	16	41
Louisiana	27	16	43
Maine	23	17	40
Maryland	21	10	31
Massachusetts	12	8	20
Michigan	17	16	33
Minnesota	14	15	29
Mississippi	28	12	40
Missouri	11	13	24
Montana	30	11	41
Nebraska	21	8	29
Nevada	32	12	44
New Hampshire	23	20	43
New Jersey	13	18	31
New Mexico	32	15	47
New York	12	17	29
North Carolina	27	15	42
North Dakota	19	10	29
Ohio	22	7	29
Oklahoma	21	11	32
Oregon	26	38	64
Pennsylvania	18	18	36
Rhode Island	13	16	29
South Carolina	35	13	48
South Dakota	26	14	40
Tennessee	29	12	41
Texas	23	10	33
Utah	18	7	25
Vermont	22	27	49
Virginia	30	17	47
Washington	18	17	35
West Virginia	21	17	38
Wisconsin	11	16	27
Wyoming	23	11	34

OWEN-DYNETO ADDS ELECTRIC CLOCK LINE

Syracuse, N. Y., July 17.—Owen-Dyneto Corporation is developing new products to supplement its starting, lighting and windshield wiper line, including an electric clock for homes, which is being distributed through a New York concern and retails for less than $3. Production schedule, now getting under way, calls for an output of 2,500 clocks a day. The company expects to shortly announce a new product in the automobile accessory field, says Harry L. Bill, vice-president and general manager.

LEASES IN NEWARK

Newark, N. J., July 17.—The Branford Brake and Auto Repair Company has leased premises at 228-230 Halsey St.

EASTERN LINE TO OPERATE TRUCKS IN BOSTON AREA

(Coninued from Page 1)

that we will carry freight to and from New England, via Boston, for the lowest rates charged by any standard service. That will mean employment for many additional men, including longshoremen and men who are connected with the motor-truck industry."

The Eastern Lines issued a statement yesterday at their New York offices explaining the service as a move to tap sources in Massachusetts and New Hampshire, particularly Lowell, Salem, Beverly, Lawrence, Haverhill, Lynn, Danvers, Manchester, Exeter, Somersworth, Nashua and Waltham. The bulk of the freight will be carried by the express steamers Boston and New York.

The new rates will be announced early next week, effective July 24.

Obituaries

TRUMAN P. GAYLORD

East Pittsburgh, Pa., July 17.—Truman P. Gaylord, 60, vice-president of the Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa., died suddenly recently in Shelby, Mich., his boyhood home, where he had been visiting his mother. Mr. Gaylord was born in the town where he died. He attended the Allen Academy of Chicago; the University of Michigan, from which he was graduated with the degree of electrical engineer; and Armour Institute of Technology, from which he secured a degree in 1895.

NORMAN H. HALLIDAY

Allentown, Pa., July 17.—Norman Henry Halliday, vice-president of Mack Trucks, Inc., in charge of sales of trailers, died in a hospital here last night from appendicitis. He was 47 years old.

Mr. Halliday entered the automotive field as sales manager for John N. Willys, later going with the Mack Trucks as vice-president and division manager of the New England territory.

Multiple Spindle Machine

(Continued from Page 5)

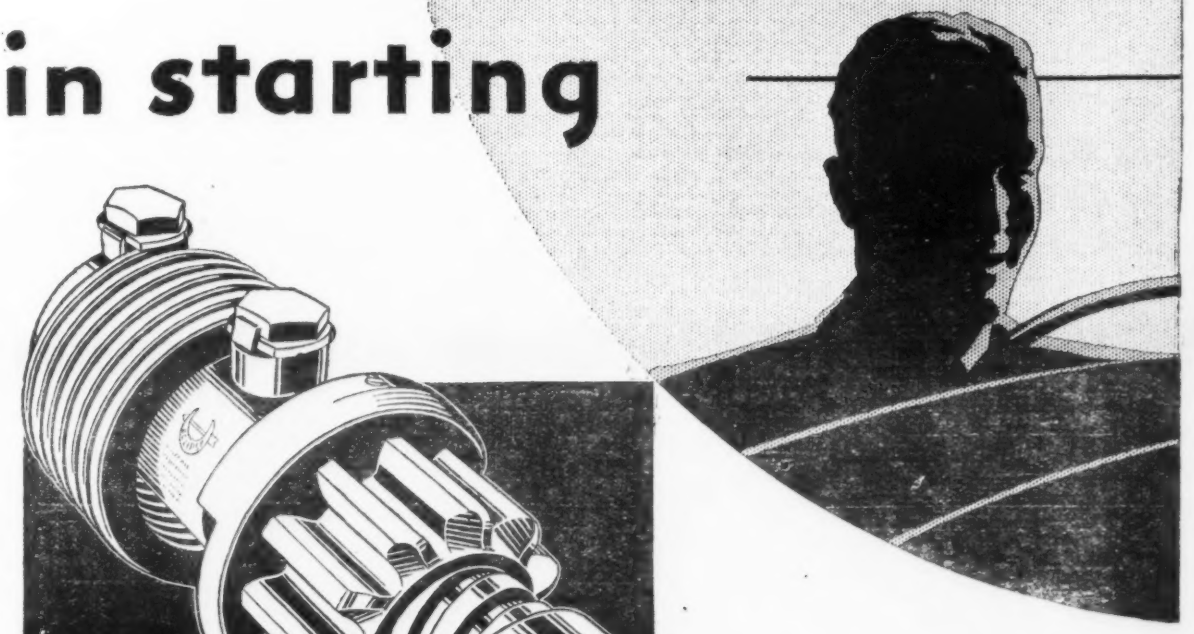
tools. The two lower slides are made from heat-treated alloy material and slide on heavy ways, tongued and bolted to the bed frame.

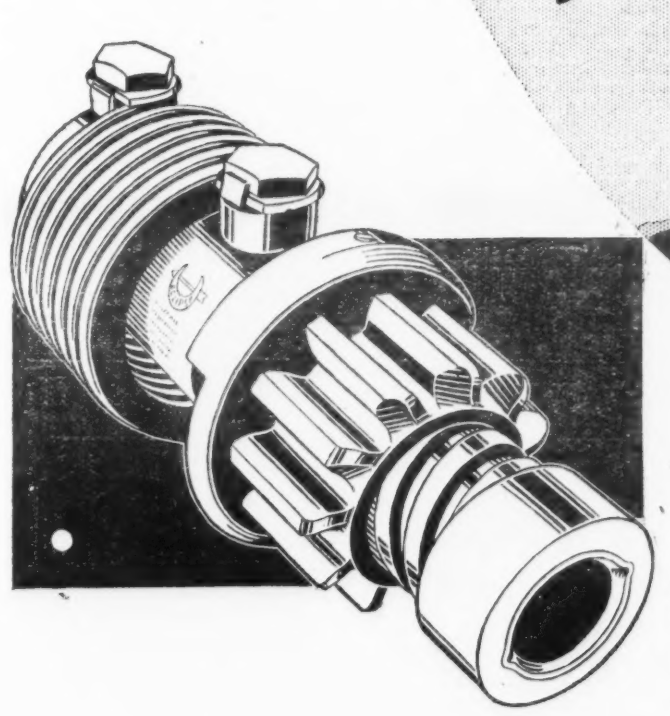
The double top slide mounted over the work spindle turret provides two extra tool positions for the two upper spindles. All slides are independently controlled and provided with adjustments for accurately sizing the work.

The square turret attachment, securely anchored in the main tool turret and supported at the upper end of the center sleeve, affords four extra tool positions for end cutting tools, which are independent of the tools carried in the main tool turret.

CERT

in starting





• When you say "Start!" your Bendix Drive obeys instantly. Latent power leaps to life, at the command of this mechanical hand that cranks your car.

Automatically it responds to a mere touch—the Bendix Drive takes hold, cranks, releases; then protects the starter from damage in unintended operation.

A great majority of cars running today have the Bendix Drive . . . certainly proof of Bendix certainty.

BENDIX
Automobile and Aviation
PRODUCTS

Bendix Brakes, Bendix Drive, Eclipse Aircraft Starters and Generators, Stromberg Carburetors, B-K Vacuum Brake Boosters, Aircraft Propellers, Bendix-Westinghouse Air Braking Systems, Marine Instruments, Scintilla Aircraft Magnetos, Pioneer Instruments, Delco Aircraft Ignition, Weather Instruments, Cowdrey Brake Testers and other equipment.

ECLIPSE MACHINE COMPANY .. ELMIRA, NEW YORK
ECLIPSE MACHINE COMPANY, *Limited* · WALKERVILLE, ONT.
(SUBSIDIARIES OF BENDIX AVIATION CORPORATION)

BENDIX
AUTOMOBILE

S. O. OF INDIANA WILL DISCONTNUE LOANING EQUIPMENT

(Continued from Page 1)

policy will become permanent, they said, if the competitive situation permits.

Standard of Indiana will discontinue supplying pumps, tanks, and other dispensing equipment, leaving it to resellers to make their own arrangements directly with the suppliers of equipment. Nor will the company furnish air compressors, air towers, flood lights, light posts, lighting equipment, power lifts, battery charging and tire equipment, and other items which retailers have become accustomed to requesting from oil companies. It will also decline to carry out or pay for any construction work about stations or for any painting other than that involved in identifying stations and obliterating competitive advertising.

The policy will not be retroactive; that is, no equipment already furnished will be taken away from established accounts. But such dealers will be expected to make their own provisions for any new or additional equipment or for any changes. In taking over accounts previously supplied by other companes Standard of Indiana will supply equipment similar in kind and age to that already installed, or buy the installed equipment in accordance with fixed rates. It will expect to collect on a like basis for its equipment when an account goes to a competitor. Second-hand equipment may be disposed of to dealers, but no new equipment whatever will be sold or installed even for full payment.

The drive-in stations leased by Standard of Indiana under agreements by which the operators became the company's authorized agents will not be affected by the change in policy.

While the Standard of Indiana action will have little immediate effect on established retail outlets, it is expected to discourage the unsound multiplying of pumps and of outlets generally which has been the subject of much discussion in the industry and by government trade analysts.

BUDD WHEEL EARNS $485,201 IN FIRST HALF OF THIS YEAR

Detroit, July 17.—Net earnings of the Budd Wheel Company for the first six months of 1931 totaled $485,201, after Federal taxes and reserve for depreciation. This was equivalent to 44 cents per share on 990,675 shares of common stock outstanding.

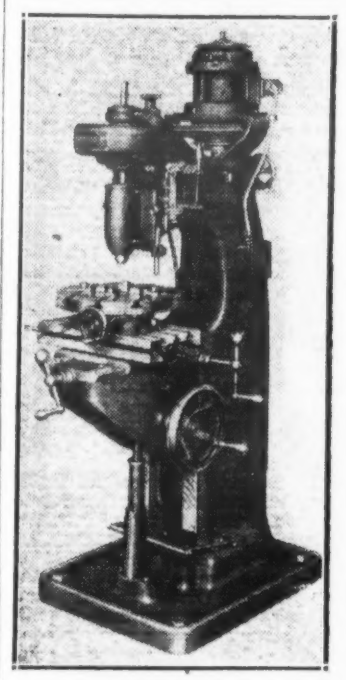
Earnings for the second quarter of 1931 were 26 cents per share, exceeding the quarterly dividend requirements. Net earnings for the second quarter were $271,122, compared with $214,079 for the first quarter.

Wire wheel schedules have been substantially increased in the last few days, due to introduction of new models by one of the Budd company's most important customers, it is stated. These increased schedules already are being reflected in production for the first half of July, which is running ahead of the first half of June.

MARTIN-PARRY SUES G. M. FOR $250,000

Detroit, July 17.—Martin-Parry Corporation is suing General Motors Corporation for $250,000 as difference between values set by respective companies on inventory of Indianapolis plant sold last fall by Martin-Parry to General Motors.

NEW REED-PRENTICE VERTICAL MILLER HAS 10 SPINDLE SPEEDS



REED-PRENTICE vertical milling machine and router

A new router and vertical milling machine for brass, steel and cast iron has been placed on the market by Reed-Prentice Corporation, Worcester, Mass. This is a new design of the No. 2 size. Features include:

The machine is operated by a 1-horse-power vertical motor at 900, 1,200 or 1,800 r. p. m., which provides ten spindle speeds of 500 to 3,000, 666 to 4,000 and 1,000 to 6,000 r. p. m. Spindle speeds to 12,000 r. p. m. can be provided. Drive is by a V belt. The motor is adjustable for proper belt tension.

A spindle pulley brake and lock permits quick stopping of spindle. The micrometer depth stop is graduated in thousandths with vertical scale graduated to 2 inches and subdivided in tenths. The spindle is provided with collet sleeves to take either old style or new improved collets. Spindle is mounted on ball bearings.

The four-step pulley is of aluminum alloy.

Large micrometer dials are provided for all feed screws.

Specifications

Longitudinal feed, 14 inches; cross feed, 11 inches; vertical feed of knee, 15 inches; head travel with micrometer depth stop, 2 inches; head travel without micrometer depth stop, 3 inches; maximum distance between spindle and machine table, 17 inches; maximum distance between spindle and rotary table, 13 inches; maximum distance between spindle and frame, 15 inches; working surface, 18x8¾ inches; length of carriage, 16½ inches; diameter of rotary table, 15 inches; hole through spindle, ½ inch; net weight, 1,650 pounds.

CANADA LOOKS FOR LOWER CAR PRICES DUE TO NEW TARIFF

(Continued from Page 1)

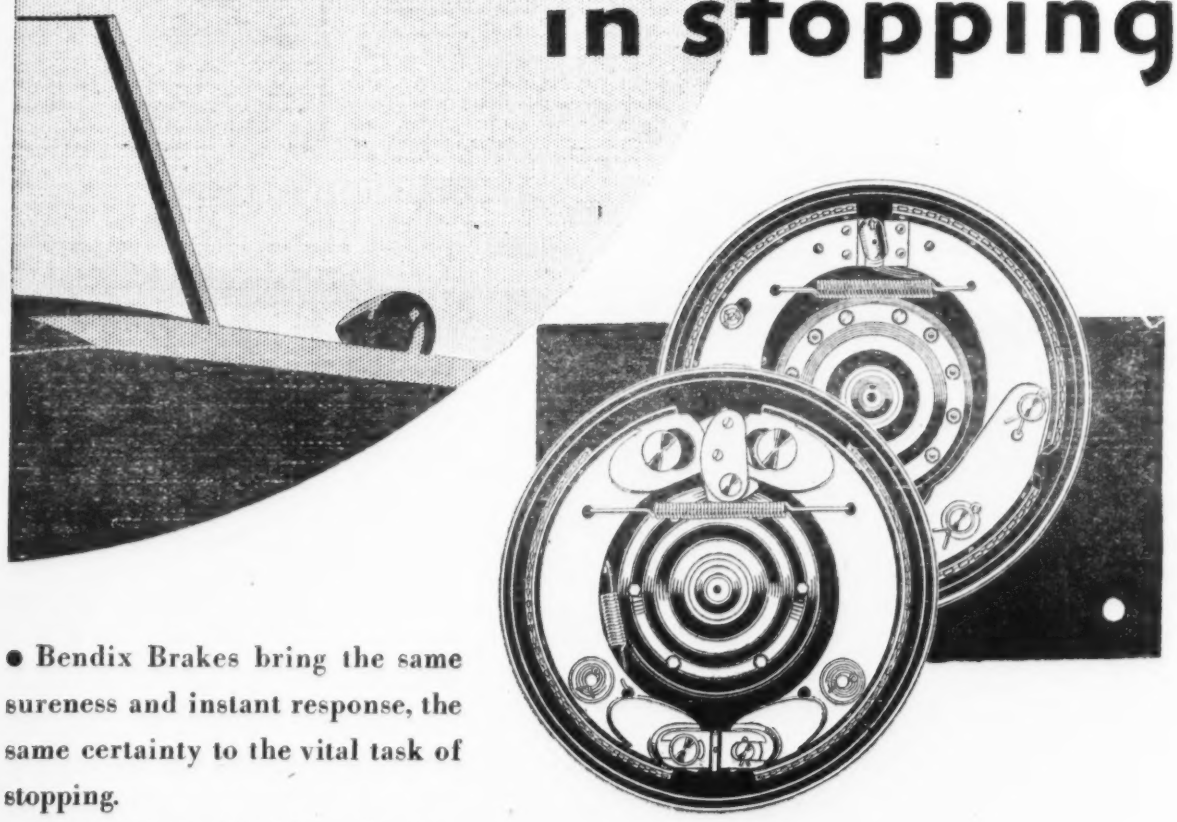
cause of the present low production. Re-establishment of the Australian market for Canadian-made chassis, as a result of the trade treaty made early this week between Canada and Australia, is expected to be of some assistance to the Canadian plants.

FISHER CUTS OUTPUT TO MEET VACATION CLOSE

Pontiac, Mich., July 17.—The Fisher Body Company is tapering off production at its plant here in preparation for closing the factory for the usual vacation period, lasting until August 1.

Bodies for Oakland-Pontiac production are turned out here and volume has been cut from 430 bodies per day to 200.

AINTY in stopping



• Bendix Brakes bring the same sureness and instant response, the same certainty to the vital task of stopping.

Exclusive Bendix "Servo" action multiplies a moderate foot pressure on the pedal into a smoothly powerful mastery of the vehicle; under all conditions of speed and load.

Further proof of Bendix certainty—the tremendous number of cars today using Bendix Brakes.

BENDIX BRAKE COMPANY • SOUTH BEND, INDIANA
(SUBSIDIARY OF BENDIX AVIATION CORPORATION)

PRODUCTS and AVIATION

Dynamometer Use in the Automobile Industry

(Continued from Page 5)

field reversing switch for operation in either direction of rotation, double pole switch for operation as a motor or pump back as a generator or generator operation as resistors, and a watt meter with a double scale, one showing kilowatt input and output and the other horse power input and output.

APPLICATIONS

Engine Test

Probably the most important field for dynamometer application is in testing automobile engines.

There are a great many variable factors, the design of which affect the output of an engine. The only way of determining these effects is by test. The electric dynamometer coupled directly to the engine has proved most suitable, although hydraulic dynamometers are sometimes used.

In the case of a new engine, the dynamometer is operated as a motor for a few hours to "run in" the engine. The engine is then fired, and the dynamometer is used as an absorption generator for loading the engine. Where the test is conducted below, the basic speed of the dynamometer, or where there is considerable speed variation, power is absorbed in the resistors. For tests above the basic speed and where the speed remains constant for considerable lengths of time, the power is often pumped back into the shop mains and is used to drive other shop machinery.

Production Test of Engines

The block test dynamometer is in very general use for engine production test in automobile factories. The dynamometer has a shaft extension at both ends to permit one engine being tested while another is being mounted in position. The operation is similar to that with the cradle-type dynamometer, the engine being first lapped in and then fired.

The number of stands used depends on the daily production of engines and length of the working day. The time required for testing varies from two to six hours, depending on engine size. Tests should be so arranged that half of the engines are being lapped in while the other half are generating useful power.

Chassis Test

Another important use of the electric dynamometer is in testing completed chassis. This test achieves the same result as that formerly accomplished by road tests, does it in a better manner and is less expensive to conduct.

Two types of testing stands are in use, one for light pleasure cars and the other for large trucks and buses. In these tests the unit to be tested is secured in position and the driving wheels are located on two paper faced drums located on a common shaft and connected to a dynamometer. The wheels are then run and scale readings are taken of the power developed at various speeds. Equipment is also available for four wheel brake torque tests.

Tire Testing

Another large use of dynamometer equipment is in testing the efficiency and life of automobile and truck tires. Two dynamometers are used in this test, one acting as a motor and the other as an obstruction generator. The shaft of the former carries the tire which revolves against a large drum which is connected to the generator unit. Torque and speed readings of both machines are taken, from which the horse power input and output and hence the efficiency are calculated.

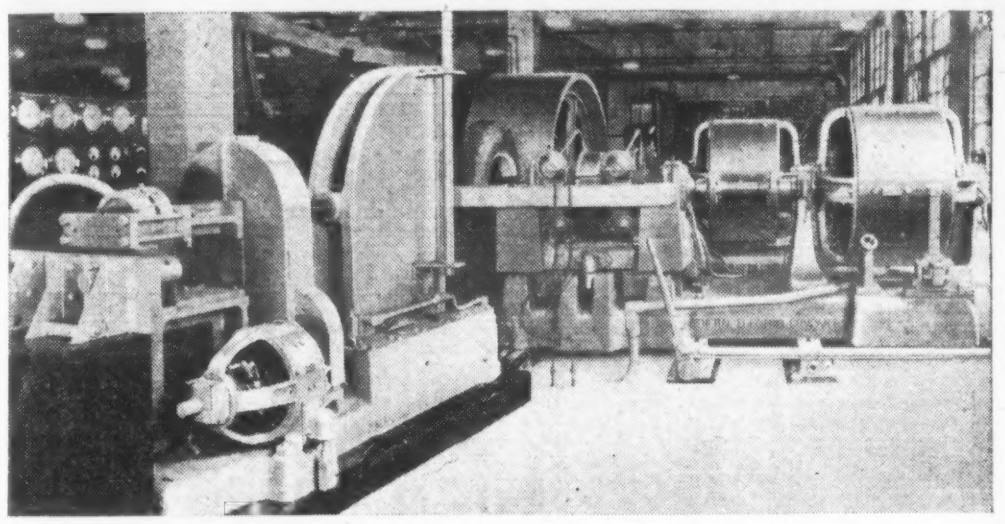


FIG. 4. Tire test dynamometer installation, 600 h. p., 3,000 r. p. m.

KEY CONTROL FEATURE OF NEW KLEMM GOVERNOR

NEW Klamm "Cheat-Proof" governor

A new governor for controlling the speed of automotive vehicles is offered by Klemm Automotive Products Company, Chicago, Ill.

One of the exclusive features of hte new "Cheat-Proof" governor is ble for the driver of the vehicle to alter the speed at which the governor is set. Models are available to fit all makes of engines.

FREE WHEELING NOW AVAILABLE ON CHRYSLER 6

Detroit, Mich., July 17.—An announcement made here today by Chrysler Sales Corporation makes free wheeling, or the Chrysler multi-range four-speed transmission with dual high gears, available on the Chrysler Six as optional equipment at slight extra cost.

Future purchasers of the Chrysler Six may have their choice, according to the statement, of three distinct types of transmission. These types are: The standard three-speed with easy shift gears; this same transmission, with free wheeling or the multi-range with dual high sears of the same type used on the Chrysler Imperial, the Chrysler Eight and Chrysler "70" lines.

Free wheeling is not available with the multi-range transmission.

Free wheeling is offered optionally at $20 extra, and the multi-range four-speed transmission at $35 extra.

The free wheeling device offered on models of the Chrysler Six line is a Chrysler engineering development.

MULLINS STAMPINGS
FOR THE AUTOMOBILE INDUSTRY

WRITE!
Mullins Mfg. Corp., Salem, Ohio
332 So. Michigan Ave., Chicago.
General Motors Building, Detroit.

RED RING LAPPING MACHINE FOR SPUR OR SPIRAL GEARS

RED WING gear tooth lapping machine

The Red Ring Model GLB lapping machine, designed for lapping automobile transmission gears of the spur or spiral type, has been introduced by National Broach and Machine Company, Detroit, Mich.

Because the axes of the gear and the lap are crossed at a considerable angle, there is a definite cross-sliding action between the lap and the gear teeth at all points of contact. This avoids the irregular shape caused by lapping two similar gears. Well cut and carefully heat-treated gears can be lapped in 3 minutes, it is claimed, while more irregular gears require 5 to 6 minutes.

With carefully made gears, the laps will give approximately 400 gears for each cutting, and provision is made for two recuts. An operator can run from three to four machines.

Wear of the lap is compensated for by adjustment of the angle of contact.

Maximum capacity of the GLB is 7 i. O. D., 5 D. P., 1½ in. width of face and 12 in. between centers. Corresponding capacities of the model GLE are 15 in. 4 D. P. and 18 in.

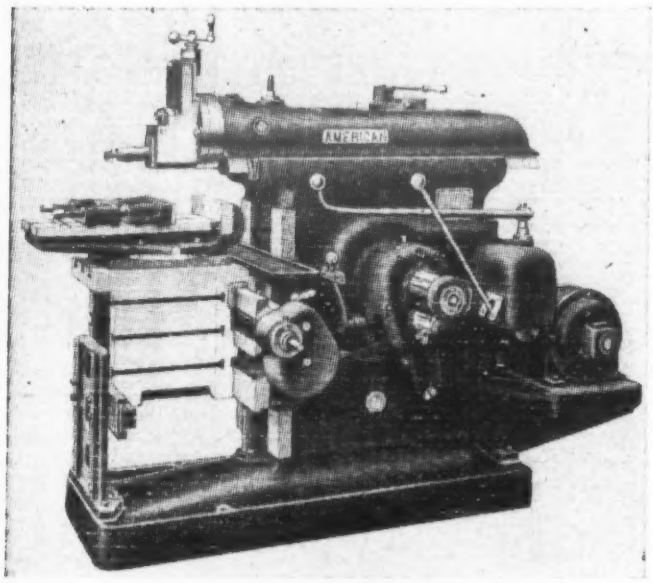
CUMULATIVE NEW PASSENGER CAR

In this table 18 states and the District of Columbia **Returns for today: Florida, Idaho, Missouri, New**

States	Auburn	Austin	Buick	Cadillac	Chevrolet	Chrysler	Cord	De Soto	De Vaux	Dodge	Durant	Essex	Ford	Franklin	Graham	Hudson	Hupmobile	La Salle
Arkansas	1		12		305	22		6		23		1	174		8	1	1	1
Delaware	5	1	47	4	200	20		3		6	6	10	162		1	5	2	2
Florida	46	5	100	2	1170	94		18	4	51	4	60	1104	5	50	26	9	4
Idaho	5	1	13		241	14	2	14	8	25	6	4	233	1	7	7		
Illinois	261	10	388	97	2979	416	21	191	35	368	15	229	3429	20	147	88	115	68
Indiana	126	2	151	20	1304	130	5	142	8	147	11	115	1119	4	50	47	39	6
Maryland	54	2	118	15	1347	80	1	42	2	40	17	76	915	5	38	27	43	7
Minnesota	54	2	97	6	1651	112		47	10	85	11	85	923		62	39	33	8
Missouri	79	5	272	20	2398	151	5	86	18	149	18	121	1669	8	79	38	67	13
Montana	7	1	27	1	241	29		22	4	19	6	9	186	4	3	7	1	2
N. Hamp.	10	1	48	5	413	34		13	5	19	6	36	377	3	11	14	9	5
N. Dakota	5	1	26		349	19		1	2	22	7	12	271		7	9	3	1
Rh. Isle.	37	2	101	14	513	79	1	79	1	52	4	56	402	4	20	19	11	11
S. Ca'lina	14	2	40	1	670	42		22		32		20	537		1	14	10	4
S. Dakota	5	1	30		378	41		14	7	39	4	19	261		3	6	12	
Utah	11		20	5	278	9		10	10	27	3	27	213		10	10	5	1
W. Va.	28	4	43	6	686	84		29	8	83	1	41	608	1	32	20	14	4
Wisconsin	76	2	175	13	1278	117	7	70	35	124	16	107	885	3	37	36	25	12
Dist. of C.	40	4	124	12	833	56	1	50		67	6	44	935	3	25	11	34	11
Totals	864	46	1832	221	17234	1549	43	859	157	1378	141	1072	14403	61	591	424	433	160
Ark., '30	1	1	21	1	280	14		9		23	6	14	430		7	5	2	2
Dela., '30	1		46	11	189	35	1	5		5	11	13	348	1	7	6	10	5
Fla., '30	4		73	5	675	74	1	28		37	5	47	1239	6	46	32	14	10
Idaho, '30	1		30		256	16	1	8		25	21	19	381	1	9	9	4	
Ill., 1930	68		656	61	3117	490	26	298		449	71	314	6752	58	232	167	217	88
Ind., '30	36	4	176	11	1324	140	11	130		173	30	165	2568	7	61	60	49	20
Md., '30	12		131	7	1066	83	1	24		69	18	99	1429	4	72	31	45	11
Minn., '30	7		93	6	1725	139	3	43		92	23	69	2789	2	93	35	53	14
Mo., '30	18	1	157	19	1893	140	8	60		159	31	100	2857	8	114	55	51	25
Mont., '30	5		27	3	270	26	2	29		22	13	26	369	6	4	9	14	7
N. H., '30	10		42	3	270	38		19		30	8	46	573	2	17	13	18	3
N. D., '30	1		23	1	590	47		8		35	23	23	831	1	17	12	2	
R. I., '30	8		71	6	332	70	1	66		50	10	44	604	4	25	15	15	8
S. C., '30			34	1	389	16		23		20	2	26	799	1	5	15	9	
S. D., '30	3		39	1	645	54		10		61	25	42	825	1	16	13	19	
Utah, '30	9		28	5	324	34	2	31		42	45	35	586	2	33	17	9	3
W. Va., '30	6		60	2	805	63	3	35		129	29	69	1265	6	60	30	21	8
Wis., '30	19		208	14	1666	168	2	71		170	48	160	2591	14	96	71	36	6
D. of C., '30	11		68	7	431	32	1	18		33	13	46	1078	3	39	22	32	15
Totals, '30	220	6	1983	164	16247	1679	63	915	*	1624	432	1357	28314	127	953	617	620	225

*Not in production

New American Shapers Automatically Lubricated



AMERICAN auto-oiled shaper

A new line of American auto-oiled shapers in sixteen to thirty-six-inch sizes has been introduced by the American Tool Works Company, Cincinnati, O.

The drive is through a four-speed gear box, with the gears running in oil. The gear changes are effected by the manipulation of a single lever. Gears are cut from chrome-magnese forgings, and the shafts are mounted in roller bearings. Bearings and gears are flooded with filtered oil by the automatic lubrication system.

Power is delivered to the gears through a multiple disc clutch which runs in oil. A brake, operating in conjunction with the clutch, provides a stop for the ram.

Back gears are of the single helix type, with the gear shaft mounted in tapered roller bearings.

The bull wheel, fitted in two pieces, is balanced.

The heavy rocker arm is made of a 25 per cent. steel mixture mounted on pivot shaft at the bottom, which is journaled in both of the column walls. This mounting supports the weight of the rocker arm and its parts. The connection between the rocker arm and the ram is through a double link.

The area of the sliding block has been increased over usual practice, since no attempt has been made to compensate for wear. The block is made of hardened alloy steel, and provision has been made for ample lubrication.

The ram is of the V-type, with force-feed lubrication.

Heavy construction features the column and base.

The automatic forced lubrication system consists of a large oil reservoir in the base with a settling compartment. From a second compartment, into which the settled oil flows, a plunger pump forces the oil to the filtering and distribution tank at the top of the column. In this tank the oil is forced by pump pressure through felt pads. The clean oil is then distributed under pressure to all bearings, gears and other moving parts.

Centralized control is another feature of the new machines.

Stroke length is changed by a single operation. A straight scale along which a pointer travels indicates the stroke length.

The cross feed is new. It is automatic and provides nine graduated feeds. A conveniently located scale permits the operator to select the desired feed.

An automatic safety mechanism protects the feed works from damage should the tool be accidentally fed into the cut or the apron fed into either end of the cross rail.

The table support automatically compensates for the sag of table and work.

A belt-connected motor drive has been adopted. A constant speed motor operating at 1,800 r. p. m. is recommended.

Power traverse for the table can be supplied. A variety of tables and vise have been developed to adapt the shaper to specific classes of work.

Automatic power feed to head can be supplied at extra cost.

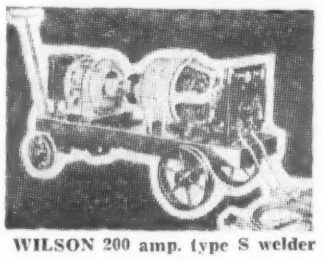
Regular equipment includes single or double screw vise, table support, automatic forced lubrication system, roller bearing mountings for high-speed shafts, belt guard and necessary wrenches.

JAS. H. RAND, JR., NAMED REMINGTON-RAND HEAD

New York, July 17.—At a meeting of the directors of Remington Rand, Inc., ames H. Rand, r., was elected president of the company. Mr. Rand, who is also chairman of the board, succeeds William F. Merrill as president. The latter resigned as a director on Tuesday.

The number of directors was increased yesterday by one. H. J. Fuller, a former director, who was not re-elected at the annual meeting of the stockholders on Tuesday, was elected a director to fill the new place on the board.

CONTROL FEATURES WILSON 200 AMP. WELDER



WILSON 200 amp. type S welder

Close-current control is the outstanding feature of the 200 amp. electric motor-driven welder manufactured by Wilson Welder and Metals Company, Inc., North Bergen, N. J. This close control is maintained by the Wilson type S rotary switch mounted on the panel of the welder.

No separate exciter or brush-shifting device is required. It is claimed that any increment of welding current can be obtained between the eight points of the rotary switch by adjusting the open circuit voltage by means of the field rheostat. This enables the operator to use either a short arc with close control or a long arc and a heavy current for rapidly depositing the welding metal. With dual control, it is also claimed, the current voltages and the required currents are provided for welding different metals and their alloys.

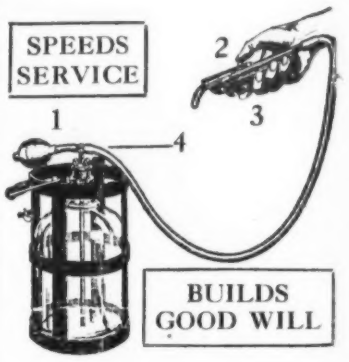
The 200 amp. type S welder, the manufacturer states, is capable of turning out fast work with stades up to $\frac{1}{4}$ inch diameter.

The New Lite-Way

handy battery filler

BUILT BY

PINES



1. Air Compressor Bulb—a squeeze or two generates enough pressure to fill entire battery.

2. Push Button Flow Control—instant flow or cut-off.

3. Built-in Flashlight illuminates cells of battery for easy, accurate filling.

4. Special Lite-Way Bottle Plug . . .

NO garage or service station should be without one of these new Pines Lite-Way Battery Fillers. They're handy, swift and easy to operate. A light at the point of flow lights up the cells for you.

Think of the time this handy filler saves . . . time you can spend on profitable business. You impress your customers with the fact that you are on the job . . . doing all you can for their convenience. Customers appreciate this. And satisfied customers mean more business for you.

When you use the new Lite-Way Handy Filler, you simply unscrew the battery caps and turn on the light to inspect the cells. If water is needed, squeeze compressor bulb, then press the control valve until the water reaches the desired level. You need use only one hand. No flashlight juggling. No loss of time — a clean job quickly done without danger of soiling upholstery, etc. Customers can't be anything but pleased with this kind of service.

Pines Lite-Way Handy Filler has other uses. In winter it may be used for adding alcohol to radiators. In the country many find it practical for filling oil or gasoline lamps and stoves. The perfect control of the fluid and the Lite-Way feature are immensely valuable.

$4.85 each

Lite-Way Handy Filler (No. A-5080) is packed one in a shipping carton with standard one-gallon glass jug without flashlight batteries (weight 10 lbs.). List price is $4.85. Place your order with your nearest Pines distributor now. Or write to us for his name.

PINES WINTERFRONT COMPANY

1151 N. Cicero Ave., Chicago

REGISTRATION STATISTICS, JUNE, 1931

Hampshire, Rhode Island and South Dakota

States	Lincoln	Marmon	Nash	Oakland	Oldsmobile	Packard	Peerless	Pierce-Arrow	Plymouth	Pontiac	Reo	Studebaker	Whippet	Willys	Willys-Knight	Miscellaneous	Totals
Arkansas			11	1	4	1			14	16	1	9		4			616
Delaware	1	1	11	5	16	6		2	6	30		7		4	2		565
Florida	7	15	35	15	26	12		6	45	137	16	45	2	46	3		3,162
Idaho	1	1	11	5	11	2			24	15	2	18	2	20	3		696
Illinois	33	8	192	74	560	130	24	26	145	585	22	303	1	213	34	14	11,241
Indiana	2	23	52	22	140	13		5	84	181	9	143	3	138	3	7	4,251
Maryland	7	3	90	33	48	26	10	9	55	167	10	63	4	49	7	2	3,412
Minnesota	3		37	17	99	13		4	155	219	5	64	4	144	9		3,998
Missouri	11	16	117	51	138	19	2	17	126	283	15	115	11	109	10	6	6,242
Montana		1	16	7	13			1	21	36		8	2	24	2		700
N. Hamp.	3	4	41	16	46	7			40	59	3	29		39	2		1,298
N. Dakota	1	1	13	3	10				32	41	3	9	3	33	5		889
Rh. Isle.	3		39	14	29	11	3	11	19	98	17	30		33	6		1,719
S. Ca'lina	1		3	2	16	3			24	35	2	10		7			1,512
S. Dakota		1	7	6	37				35	30	2	15	3	16	1	1	974
Utah		2	15	5	13	2			3	17	1	11	1	10	1		720
W. Va.	5	1	23	19	40	8			84	103	11	40		91	2	1	2,120
Wisconsin	4	4	149	34	102	24	2	3	97	224	11	102	5	112	12	3	3,906
Dist. of C.	6	7	47	18	66	25		6	30	107	2	78		28	6	1	2,683
Totals	88	88	909	347	1414	302	41	90	1039	2383	132	1099	41	1120	108	35	50,704
Ark., '30	2		9	3	4	1		3	21	8		10	2	2	1		882
Dela., '30	1	1	3	5	4	17		2	22	29		9	3	6	1	1	798
Fla., '30	2	13	23	12	27	16		3	58	52	12	10	10	10	8	2	2,554
Idaho, '30	1		16	6	8	1			31	18	1	16	9	5	1		894
Ill., 1930	46	72	405	97	446	323	13	42	543	409	38	422	82	186	88	63	16,339
Ind., '30	7	67	113	42	142	46	4	5	238	171	15	150	30	71	15	24	6,105
Md., '30	4	11	66	32	59	57	1	8	111	98	12	73	36	37	16	24	3,747
Minn., '30	3	12	76	37	104	32	1	2	392	181	13	116	67	124	26	7	6,379
Mo., '30	3	27	112	49	143	70	3	32	190	141	9	63	73	104	23	34	6,772
Mont., '30		5	25	11	9				37	33	4	15	16	13	5		1,005
N. H., '30	1	11	44	7	25	16		3	52	30	13	20	6	16	6	3	1,345
N. D., '30		3	43	14	21	1			78	52	3	21	39	53	9	3	1,954
R. I., '30	2	2	44	17	22	30	12	9	49	51	17	27	3	19	15		1,648
S. C., '30	1	1	9	2	10	9			16	16	2	8	3	2	1		1,420
S. D., '30		5	24	6	87	7	1		81	37	2	44	24	28	3	3	2,106
Utah, '30		7	17	16	21	12		1	22	19	3	23	4	2	2	3	1,357
W. Va., '30	2	23	41	32	40	28		3	118	91	5	46	45	76	16	5	3,162
Wis., '30	1	19	199	60	138	50	10	15	330	207	21	146	69	122	22	15	6,764
D. of C., '30	5	5	21	29	57	48	12	4	58	71	3	43	6	6	13	6	2,236
Totals, '30	81	284	1290	477	1367	764	57	132	2447	1714	173	1262	527	882	271	193	67,467

SEASONAL DROP IN STEEL BUYING IN YOUNGSTOWN, O.

Youngstown, O., July 17.—Automobile steel buying in the Youngstown district is showing its usual summer inactivity, although the decline in production has been somewhat less pronounced than in summers of other recent years. Sheet and strip producers are meeting the same type of fluctuating market which has existed throughout 1931, but less business is available than a month ago.

Sentiment among Youngstown steel manufacturers, however, is improving and a gradual but significant advance in steel plant activity is now forecast for early fall months. Because the summer slump is not as emphatic as some producers of steel expected and since business factors outside the steel industry indicate that the bottom of the depression has been reached, or passed, steel company executives in the Mahoning Valley are said to be more optimistic than for several months. Aside from one large pipe order, this feeling is not based on actual improvement in trade, but on possibilities.

Steel mill operations in the Mahoning Valley are holding at 38 per cent. activity, against 38 per cent. last week and 41 per cent. two weeks ago. Nine blast furnaces are melting, unchanged from a month ago and some accumulating of pig iron is reported.

Such steel producers as Carnegie Steel Company show unchanged operations at 35 per cent. of capacity, slightly under the average for the district as a whole, but higher than the average for the entire industry or for the corporation of which Carnegie is a part. In the like week of 1930 Carnegie plants in the valleys operated at 55 to 58 per cent. of capacity.

Republic Steel Corporation reports operations of 45 per cent. in the Youngstown district, while activity of the corporation's plants in all districts probably averages under 40 per cent. Tin plate demands are helping operations at the Warren plant.

Youngstown Sheet and Tube Company has ceased operations at its Brier Hill plant, except for an electric pipe welding mill, and shows 40 per cent. operations at its principal works at Campbell where steel is now being made for use in the largest pipe contract awarded in the valley this year.

Sharon Steel Hoop Company operations are holding at 50 per cent. of capacity in its steel ingot department at Lowellville, as well as in its finishing mills in Youngstown and Sharon, Pa. Any improvement in automobile steel buying will quickly be reflected in operations for this company.

Mahoning Valley Steel Company is the only one of the smaller sheet manufacturers which is doing much in the way of production this summer. Newton Steel Company production at Monroe, Mich., is taking care of that company's customers.

NEW BAY STATE SPEED LIMIT OF 35 MILES PER HOUR HAS RESTRICTIONS

Boston, Mass., July 17.—Calling attention to the new law increasing automobile speed limits effective July 16, Morgan T. Ryan, registrar of motor vehicles, in a public statement issued today declared that the law places greater responsibility upon the individual automobile driver to drive safely and to exercise good judgment.

The law raises speed limits from 20 to 30 miles outside of thickly settled or business districts, from 15 to 20 miles in thickly settled or business districts and from 8 to 15 miles where the operator's view is obstructed on approaching or traversing an intersection or going around corners or curves.

"The new law," stated Mr. Ryan, "is in line with other progressive legislation and simply recognizes changed conditions of roadway and equipment. It results in bringing the legal requirements in conformity with actual conditions." Mr. Ryan said that he believed it to be a wise measure because modern and wider roads constructed by state and local authorities along scientific lines afford a much larger measure of safety than prevailed at the time the automobile first appeared and was driven over the older and narrower winding roads. He pointed out also that in many instances in Massachusetts roads have been straightened, thus eliminating many dangerous turns.

"There is, however," continued Mr. Ryan, "a danger that individuals may be misled as to their responsibility under the increased speed limits permitted. The individual's responsibility to operate his automobile safely is greater under the new law than under the old. It will be legal to operate up to the maximum speeds only when conditions are safe."

OPENS BRANCH WAREHOUSE

Union City, Tenn., July 17.—The Mills-Morris Company of Memphis, wholesaler of automobile supplies, shop equipment, etc., has located a branch warehouse in Union City.

MAJOR SPECIFICATIONS AND MECHANICAL DETAILS

Make and Model	Weight—5-P. Sedan	Wheel Base	Engine Make	Fan Belt Type	Thermostat Used	Valve Arrangement	Cylinders	Bore and Stroke	Piston Disp.	Compression Ratio	Tax H. P.	Brake, H.P. and Peak R. P. M.	Pist. Make or Material	No. Main Br.	Oil Purifier	Fuel Cleaner	Carburetor	Air Cleaner
Auburn 8-98	3916	127	Lyc	V	Dole	L	8	3 x4¾	268	*5.26	28.8	98@3400	*Alum	5	Pur	—	Sch	No
Austin	$1130	75	Own	F	——	L	4	2.2x3	45.6	5.1	7.8	13@3000	Alum	2	—	—	Til	No
Buick 8-50	3170	114	Own	V	Bish-Bab	O	8	2⅞x4¼	220.7	4.75	26.45	77@3200	CI	5	AC	AC	Mar	AC
Buick 8-60	3795	118	Own	V	Bish-Bab	O	8	3⅛x4⅝	272.6	4.63	30.02	90@3000	CI	5	AC	AC	Mar	AC
Buick 8-80	4255	124	Own	V	Bish-Bab	O	8	3⅛x5	344.8	4.5	35.12	104@2800	CI	5	AC	AC	Mar	AC
Buick 8-90	4340	132	Own	V	Bish-Bab	O	8	3⅛x5	344.8	4.5	35.12	104@2800	CI	5	AC	AC	Mar	AC
Cadillac V-8	4645	134	Own	V	Yes	LV	8	3⅜x4⅛	353	5.35	36.45	95@3000	CI	3	AC	Gas	Own	No
Cadillac V-12	5480	140-143	Own	V	Own	O	12	3⅛x4	368	5.5	46.9	135@3400	CI	4	AC	Gas	Own	No
Cadillac V-16	6100	148	Own	V	Yes	O	16	3 x4	452.0	5.50	57.5	165@3400	CI	5	AC	Gas	Own	No
Chevrolet	2685	109	Own	V	No	O	6	3⅛x3¾	194.0	5.00	26.3	50@2600	CI	3	—	AC	Car	AC
Chrysler 6	2850	*175⅞	Own	V	Yes	L	6	3¼x4⅜	217.8	5.35	25.35	70@3200	*Alum	4	—	AC	Sch	Yes
Chrysler 8	3365	*186 1/16	Own	V	Yes	L	8	3¼x4¼	260.8	5.30	31.25	88@3400	*Alum	5	Yes	AC	Str	Yes
Chrysler 8 De L.	——	187 9/16	Own	V	Yes	L	8	3¼x4¼	282.1	5.20	33.80	94@3400	*Alum	5	Yes	Yes	Str	Yes
Chrysler Imp. 8	4725	*211	Own	V	Yes	L	8	3½x5	384.8	5.01	39.2	125@3200	*Alum	9	Yes	AC	Str	Yes
Cord (Fr. Wh. D.)	4620	137½	Lyc	V	——	L	8	3¼x4½	298.6	5.25	33.8	115@3300	*Alum	5	Pur	AC	Sch	No
De Soto Six	2695	*169 3/16	Own	V	Yes	L	6	3¼x4¼	205.3	5.20	25.35	67@3200	*Alum	4	—	AC	Car	Yes
De Soto Eight	3025	*177	Own	V	Yes	L	8	2⅞x4¼	220.7	5.40	26.45	77@3400	*Alum	5	—	AC	Str	Yes
De Vaux 6-75	2810	113	Hall	V	Dole	L	6	3⅜x5	214.7	5.41	27.34	70@3400	Alum	4	AC	Ste	Til	AC
Dodge Six	2820	114¼	Own	V	Yes	L	6	3¼x4¼	211.5	5.20	25.35	68@3200	*Alum	4	No	AC	Car	AC
Dodge Eight	3174	118¼	Own	V	Yes	L	8	3 x4¼	240.3	5.40	28.80	84@3400	*Alum	5	Pur	AC	Str	AC
Durant 610	2780	112	Con	V	Bish-Bab	L	4	3⅞x4¼	200	4.80	24.0	50@2800	*Alum	3	AC	AC	Til	Til
Durant 612	2820	112	Con	V	Bish-Bab	L	6	3¼x4	199	5.32	25.4	71@3300	*Alum	4	AC	AC	Str	AC
Durant 614	3010	112	Con	V	Bish-Bab	L	6	3¼x4	199	5.32	25.4	71@3300	*Alum	4	AC	AC	Str	AC
Durant 619	2710	109	Con	V	Bish-Bab	L	6	3¼x4	199.0	5.32	25.4	71@3300	*Alum	4	AC	AC	Til	AC
Essex Super Six	2750	**113	Own	V	——	L	6	2⅞x4½	175.3	5.80	19.8	60@3300	Alum	3	—	Ste	Mar	AC
Ford A	2375	103½	Own	V	——	L	4	3⅞x4¼	200.5	4.22	24.03	40@2200	Alum	3	—	—	Zen	—
Fr'klin S 15 Trans.	3930	125	Own	—	Bish-Bab	*O	6	3½x4¾	274	5.30	29.4	100@3100	*Alum	7	AC	AC	Str	AC
Fr'klin S 15 Trans.	4130	132	Own	—	Bish-Bab	*O	6	3½x4¾	274	5.30	29.4	100@3100	*Alum	7	AC	AC	Str	AC
Fr'klin S 15 De L	4220	132	Own	—	Bish-Bab	*O	6	3½x4¾	274	5.30	29.4	100@3100	*Alum	7	AC	AC	Str	AC
Graham Pros. 6	3100	113	Own	V	Yes	L	6	3⅛x4½	207	5.45	23.4	70@3200	*Alum	7	—	AC	Sch	Yes
Graham Std. 6	3265	115	Own	V	Yes	L	6	3¼x4½	224	5.45	25.35	76@3400	*Alum	7	—	AC	DL	Yes
Graham Spl. 6	3330	115	Own	V	Yes	L	6	3¼x4½	224	5.45	25.35	76@3400	*Alum	7	—	AC	DL	Yes
Graham Spl. 8	3560	120	Own	V	Yes	L	8	3⅛x4	245	5.45	31.25	85@3400	*Alum	5	AC	AC	DL	Yes
Graham Cust. 8	4100	134	Own	V	Yes	L	8	3¼x4½	298	5.20	33.80	100@3400	*Alum	5	AC	AC	DL	Yes
Hudson Greater 8	3115	119-126	Own	V	——	L	8	2⅞x4½	233.7	5.80	26.4	87@3600	Alum	5	—	Ste	Mar	AC
Hupmobile Cen. 6	2985	114	Own	V	Yes	L	6	3¼x4¼	211.6	5.10	25.35	70@3200	Alum	4	AC	Ste	Str	Yes
Hupmobile Cen. 8	3275	118	Own	V	Pines	L	8	2⅞x4⅝	240.2	5.20	26.45	90@3200	Alum	5	Pur	Ste	Str	Yes
Hupmobile C	3730	121	Own	V	Pines	L	8	3 x4¾	268.6	5.20	28.8	100@3200	CI	5	Pur	Ste	Str	Yes
Hupmobile H & U	**	125-137	Own	V	Pines	L	8	3½x4¾	365.6	5.20	39.2	133@3400	Alum	5	Pur	Ste	Str	AM
La Salle V-8	4635	134	Own	V	Yes	LV	8	3⅜x4⅛	353	5.35	36.45	95@3000	CI	3	AC	Gas	Own	—
Lincoln	5300	145	Own	V	Fui	L	8	3½x5	384	5.23	39.2	120@2900	Alum	5	Pur	Ste	Str	Un
Marmon 70	2823	112¾	Own	V	Pines	L	8	2¼x4¼	211.2	5.50	25.4	84@3400	Alum	5	AC	AC	Str	AC
Marmon 88	4375	130-136	Own	V	Pines	L	8	3¼x4¾	315.2	5.50	33.8	125@3400	Alum	5	AC	AC	Str	AC
Marmon 16	5360	145	Own	V	Pines	O	16	3⅛x4	490.8	6.00	62.5	200@3400	Alum	5	AC	AC	Str	AC
Nash 960	2800	114¼	Own	V	Bish-Bab	L	6	3⅛x4⅜	201.3	5.00	23.4	65@3200	*Alum	7	AC	AC	Car	AC
Nash 970	3000	116¼	Own	V	Bish-Bab	L	8	2⅞x4⅜	227.2	5.00	26.4	78@3300	*Alum	9	AC	AC	Str	AC
Nash 980	3360	121	Own	V	Bish-Bab	O	8	3 x4¼	240	5.25	28.8	94@3400	*Alum	9	AC	AC	Str	AC
Nash 990	4000	124-133	Own	V	Bish-Bab	O	8	3¼x4½	298.6	5.25	33.8	115@3600	*Alum	9	AC	AC	Str	AC
Oakland V-8	3260	117	Own	V	Yes	H	8	3⅛x3⅜	251.0	5.00	37.8	85@3400	S St	3	—	AC	Mar	AC
Oldsmobile	2935	113½	Own	V	——	L	6	3⅛x4⅛	197.5	5.06	24.4	65@3350	CI	4	AC	AC	Str	AC
Packard 901-902	4570	129½-136½	Own	V	——	L	8	3⅜x5	320.0	6.00	32.5	110@3200	*Alum	9	Yes	Yes	Own	AC
Packard 903-904	5045	142⅛-147⅛	Own	V	——	L	8	3½x5	384.8	6.00	39.2	135@3200	*Alum	9	Yes	Yes	Own	AC
Peerless St. 8	3642	118	Con	V	Bish-Bab	L	8	2⅞x4¾	246.0	5.00	26.45	90@3200	*Alum	5	Pur	AC	Sch	AC
Peerless Master 8	4521	125	Con	V	Bish-Bab	L	8	3⅜x4½	322	5.00	36.45	115@3200	*Alum	5	Pur	AC	Sch	AC
Peerless De L.	4521	125	Con	V	Bish-Bab	L	8	3⅜x4½	322	5.00	36.45	115@3200	*Alum	5	Pur	AC	Sch	AC
Peerless Custom 8	4766	138	Con	V	Bish-Bab	L	8	3⅜x4½	322	5.00	36.45	120@3200	*Alum	5	Pur	AC	Sch	AC
Pierce-Arrow 43	4304	134-137	Own	V	Yes	L	8	3½x4¾	366	5.07	39.2	125@3000	*Alum	9	Han	AC	Str	Un
Pierce-Arrow 41-42	4831	142-147	Own	V	Yes	L	8	3½x5	385	5.07	39.2	132@3000	*Alum	9	Han	AC	Str	Han
Plymouth	2710	*170	Own	V	——	L	4	3¾x4¾	196.1	4.90	21.03	56@2800	*Alum	3	—	AC	Car	Yes
Pontiac	2845	112	Own	V	Yes	L	6	3⅜x3⅞	200.0	4.90	26.3	60@3000	S St	3	—	AC	Mar	AC
Reo Royale 8-35	4650	135	Own	V	Pines	L	8	3⅜x5	358	5.30	36.48	125@3300	Alum	9	Han	AC	Sch	Own
Reo Royale 8-31	4375	131	Own	V	Pines	L	8	3⅜x5	358	5.30	36.48	125@3300	Alum	9	Han	AC	Sch	Own
Reo 8-21	3610	121	Own	V	Yes	L	8	3 x4¾	268.6	5.37	28.8	90@3300	Alum	5	Han	—	Sch	Un
Reo 6-21	3525	121	Own	V	Yes	L	6	3⅜x5	268.3	5.30	27.3	85@3200	Alum	7	Han	—	Sch	Un
Reo Fly. Cloud 6-25	3950	125	Own	V	Pines	L	6	3⅜x5	268.0	5.30	27.34	85@3200	Alum	7	Han	V-S	Sch	Un
Studebaker Six	2920	114	Own	V	Dole	L	6	3¼x4⅛	205.3	5.20	25.4	70@3200	CI	4	Pur	Ste	Str	No
Studebaker Dict. 8	3095	114	Own	V	Dole	L	8	3⅛x3¾	221.0	5.00	30.0	81@3200	Alum	9	Pur	Ste	Str	AM
Studebaker Com. 8	3520	124	Own	V	Dole	L	8	3⅛x4¼	250.4	5.20	30.0	101@3200	Alum	9	Pur	Ste	Str	Un
Studebak'r Pres. 80	4250	130	Own	V	Dole	L	8	3½x4⅜	337	5.10	39.2	122@3200	*Alum	9	Han	Ste	Str	AM
Studebak'r Pres. 90	*4360	136	Own	V	Dole	L	8	3½x4⅜	337	5.10	39.2	122@3200	*Alum	9	Han	—	Str	AM
Stutz LA	4320	127½	Own	—	Bish-Bab	O	6	3⅜x4½	241.5	5.10	27.3	85@3150	*Alum	7	Wal	AC	Zen	Un
Stutz MA	4918	134½	Own	—	Bish-Bab	O	8	3⅜x4½	322	5.10	36.4	113@3300	*Alum	9	Wal	AC	Zen	AM
Stutz MB	4863	145	Own	—	Bish-Bab	O	8	3⅜x4½	322	5.10	36.4	113@3300	*Alum	9	Wal	AC	Zen	AM
Stutz DV 32	5240	134½	Own			O	8	3⅜x4½	322	5.10	36.4	155@3900	Alum	9	Wal	Ste	Sch	AM
Willys 6-97-98 D	*	110-113	Own	V	Var	L	6	3¼x3⅞	193	5.26	25.3	65@3400	CI	4	—	AC	Til	Til
Willys 8-80 D	3131	121	Own	V	Var	L	8	3⅛x4	245.4	5.26	31.25	80@3200	CI	5	—	AC	Til	Til
Willys-Knt. 66-D	3400	121	Own	V	Var	K	6	3⅜x4¾	255	5.26	27.3	87@3200	*Alum	7	Ski	Til	Til	Til
Willys-Knight 95	3122	113	Own	V	Pines	K	6	2⅞x4⅜	177.9	5.5	20.7	60@3400	*Alum	7	*	AC	Til	AC

BELL BROS. TO GRAHAM LINE IN BROOKLYN, N. Y.

Brooklyn, July 17.—The Graham-Paige Motors Corporation has appointed Bell Brothers to represent the Graham line as distributrs for all of Kings County, a territory formerly controlled by a factory branch. Bell Brothers will operate the sales headquarters at 1275 Bedford Ave. and the service station at 967 Atlantic Ave. A. J. Wise, formerly in charge of retail sales in Brooklyn, will extend his activities to cover wholesale operations for the whole of Long Island.

James and Arthur Bell, from 1919 to 1925, were prominent motor car dealers here, representing Oakland and Pontiac. They then purchased the Oakland branch at Philadelphia, selling their Brooklyn establishment to the Stratton-Bliss Company. While in Philadelphia, they created many new sales records, delivering approximately 4,000 cars a year.

STANDARD OIL OFFERS 9 CENT GAS IN PENN.

Philadelphia, July 17.—The Standard Oil Company of Pennsylvania has announced that it has placed on the market gasoline at 9 cents a gallon plus the state tax. The branded products of the company are maintained at their former prices, the 9-cent gasoline, which is described as a "third-grade gasoline," being offered at 4 cents below the former quotation for the company's lowest-priced product. The Philadelphia office of the Standard Oil Company of Pennsylvania, in a statement, says that the 9-cent gas has been placed on the market to meet a definite demand on the part of many Philadelphia motorists for a gasoline sold on a strictly price basis.

FAR EAST RUBBER STOCKS ABOVE 1930

New York, July 17.—Stocks of crude rubber in the Far East show an increase as follows, according to a cable to the Rubber Exchange of New York:—

Stocks in the hands of Malaya dealers at the end of June totaled 43,010 tons, compared with 41,135 tons in May, and 38,188 tons in June last year.

Harbor board stocks at Singapore and Penang at the end of June were 4,507 tons, compared with 3,143 tons in May and 4,263 tons in June, 1930.

COACH WORKS MOVES

New Brunswick, N. J., July 17.—The New Brunswick Finishing Company, Inc., automobile coach work, announces its removal from 187-91 Townsend St. to larger quarters at Church and Jelin Streets.

OF PRESENT AMERICAN PASSENGER CAR MODELS

Make and Model	Front End Drive	Ignition System	Gen. and Starter	Clutch	Transmis'n and Speeds	Universals	Rear Axle	Ratio	Brakes	Steering Gear	Spring Rear	Springs Shackles	Chassis Lubric.	Tires
Auburn 8-98	Chain	Del-R	*Del-R	Long	D-SM-F 3	Un P	Col ½	*4.45	S D	Ross	S 56¾	Own	Bijur	17x5.50
Austin	Gear	Aut-L	*Aut-L	Rock	War-G 3	Spic	Sal ½	5.25	M	Say-B	Cant	Own	Al-Z	18x3.75
Buick 8-50	Tex	Del-R	Del-R	Own	Mun-SM 3	Own	Own ½	4.54	Bendix	Sag	S 54½	Tryon	Al-Z	18x5.25
Buick 8-60	Tex	Del-R	Del-R	Own	O-SM 3	Own	Own ¾	4.45	M	Sag	S 55¼	Own	Alem	19x5.50
Buick 8-80	Tex	Del-R	Del-R	Own	O-SM 3	Own	Own ¾	4.27	M	Sag	S 58⅞	Own	Al-Z	19x6.50
Buick 8-90	Tex	Del-R	Del-R	Own	O-SM 3	Own	Own ¾	4.27	M	Sag	S 58⅞	Own	Al-Z	19x6.50
Cadillac V-8	Morse	Del-R	Del-R	Own	O-SM 3	Spic	Own ¾	4.75	Own-M	Sag	S 58	Own	Al-Z	19x6.50
Cadillac V-12	Morse	Del-R	Del-R	Own	O-SM 3	Spic	Own ¾	——	Own-M	Sag	S 58	Own	Alem	19x7.00
Cadillac V-16	Morse	Del-R	Del-R	Own	O-SM 3	Spic	Own ¾	4.39	Own	Sag	S 60	Own	Alem	19x7.00
Chevrolet	Var	Del-R	*Del-R	Own	Own 3	Own	Own	4.10	M	Sag	S 54	——	Alem	19x4.75
Chrysler 6	Morse	Del-R	Del-R	Own	Own-F 3	Un P	Own ½	4.60	H	War	S 53⅜	Tryon	Al-Z	19x5.25
Chrysler 8	Morse	Del-R	Del-R	—	Own-F 4	—	Own ½	4.10	H	War	S 54⅝	——	Al-Z	17x7.50
Chrysler 8 De L.	Morse	Del-R	Del-R	—	Own-F 4	—	Own ½	4.30	H	——	S 54⅝	——	Al-Z	17x6.50
Chrysler Imperial 8	Morse	Del-R	Del-R	—	Own-F 4	—	Own ½	3.81	H	Ross	S 57½	——	Al-Z	18x7.00
Cord (Fr. Wh. Dr.)	Link	Del-R	*Del-R	Long	Detr 3	UnP&MM	Col F	4.80	H	Gem	S 62	Own	Bijur	18x7.00
De Soto Six	Var	Del-R	Del-R	—	Own-F 3	—	Own ½	4.33	H	Own	S 53⅛	——	Al-Z	19x5.00
De Soto Eight	Var	Del-R	Del-R	—	Own-F 3	—	Own ½	4.60	H	Own	S 54⅝	Rub B	Al-Z	19x5.25
De Vaux 6-75	Morse	Aut-L	*Aut-L	Borg	NP 3	Spic	NP ½	4.40	S D	NP	S 54¼	Tryon	Al-Z	19x5.00
Dodge Six	Morse	Del-R	Del-R	Borg	Own-F 3	Spic	Own ½	4.60	H	War	S 55¼	Tryon	Al-Z	19x5.00
Dodge Eight	Morse	Del-R	Del-R	Borg	Own-F 3	Spic	Own ½	4.60	H	War	S 54⅝	Rub B	Al-Z	18x5.50
Durant 610	Morse	Aut-L	*Aut-L	Borg	W C 3	Spic	Own ½	3.96	S D	Own	S 55	Tryon	Al-Z	19x5.00
Durant 612	Morse	Aut-L	*Aut-L	Borg	W C 3	Spic	Own ½	4.45	S D	Own	S 55	Tryon	Al-Z	19x5.00
Durant 614	Morse	Aut-L	*Aut-L	Borg	W C 3	Spic	Own ½	4.45	S D	Own	S 55	Tryon	Al-Z	19x5.00
Durant 619	Morse	Aut-L	*Aut-L	Borg	W C 3	Spic	Own ½	3.90	S D	Own	S 54	Tryon	Al-Z	19x4.75
Essex Super Six	Morse	Aut-L	*Aut-L	Own	Own-F 3	Spic	Own ½	5.40	Bendix	Gem	S 54⅞	Own	Alem	19x5.00
Ford A	Var	Own	Own	Own	Own 3	Own	Own ¾	3.78	M	Gem	S Tr39	Own	Al-Z	19x4.75
Franklin S 15 Trans.	Chain	Del-R	*Del-R	Br-L	**	MM	Own ½	4.54	H	Gem	El 42	None	Al-Z	19x6.50
Franklin S 15 Trans.	Chain	Del-R	*Del-R	Br-L	**	MM	Own ½	4.54	H	Gem	El 42	None	Al-Z	19x6.50
Franklin S 15 De L	Chain	Del-R	*Del-R	Br-L	War-G	Spic	Own ½	4.73	H	Gem	El 42	None	Al-Z	19x6.50
Graham Pros. 6	Link	Del-R	*Del-R	Long	F 3	—	——	4.45	H	Ross	S 54	ERS	Al-Z	19x5.00
Graham Std. 6	Link	Del-R	*Del-R	Long	F 3	—	——	4.30	H	Ross	S 54	ERS	Al-Z	5.50x18
Graham Spl. 6	Link	Del-R	*Del-R	Long	F 4	—	——	4.09	H	Ross	S 54	ERS	Al-Z	6.00x17
Graham Spl. 8	Link	Del-R	*Del-R	Long	F 4	—	——	4.09	H	Ross	S 54	ERS	Al-Z	6.00x17
Graham Cust. 8	Link	Del-R	*Del-R	Long	F 4	—	——	4.09	H	Ross	S 56	ERS	Al-Z	6.50x18
Hudson Greater 8	Morse	Aut-L	*Aut-L	Own	Own-F 3	Spic	Own ½	4.75	Bendix	Gem	S 54⅛	Own	Alem	18x5.50
Hupmobile Cen 6	Chain	Aut-L	*Aut-L	Borg	War-G-F 3	MM	Sal ½	4.70	S D	Ross	S 53	Tryon	Al-Z	19x5.50
Hupmobile Cen 8	Morse	Aut-L	*Aut-L	Borg	War-G-F 3	Un P	Sal	4.55	S D	Ross	S 52¾	Rub B	Al-Z	19x5.50
Hupmobile C	Morse	Aut-L	*Aut-L	Long	War-G-F 3	Un P	Own ½	4.55	S D	Ross	S 54	Own	Alem	19x6.00
Hupmobile H and U	Morse	Aut-L	*Aut-L	Long	War-G F 3	Un P	Own ½	4.07	S D	Ross	S 57	Own	Alem	19x6.50
La Salle V-8	Morse	Del-R	Del-R	Own	O-SM 3	Spic	Own ¾	4.75	Own-M	Sag	S 58	Own	Alem	19x6.50
Lincoln	——	Aut-L	*Aut-L	Long	Own-F 3	Spic	Tim F	4.58	Bendix	Own	S 62	Own	Alem	7.00x19
Marmon Eight-70	Diam	Del-R	*Del-R	Rock	War-G-F 3	Spic	Sal ½	4.70	Bendix	Ross	S 54⅛	Tryon	Al-Z	29x5.50
Marmon 88	Diam	Del-R	*Del-R	Rus	Detr-F 3	Spic	Sal ½	4.45	Bendix	Ross	S 60	Rub B	Al-Z	19x6.50
Marmon 16	Diam	Del-R	Del-R	Rus	Mun-F	Spic	Sal ½	3.78	Bendix	Ross	S 60	Rub B	Al-Z	18x7.00
Nash 960	Cel	Aut-L	*Aut-L	Borg	O-SM 3	Own	Own ½	4.73	M	Ross	S 50⅞	——	Alem	19x5.00
Nash 970	Diam	Aut-L	*Aut-L	Borg	O-SM 3	Own	Own ½	4.73	M	Ross	S 50⅞	——	Alem	19x5.25
Nash 980	Diam	*Aut-L	*Aut-L	Borg	O-SM 3	Own	Own ½	4.46	M	Gem	S 55	——	Bijur	18x6.00
Nash 990	Diam	*Aut-L	*Aut-L	Borg	O-SM 3	Own	Own ½	4.50	M	Gem	S 57⅛	——	Bijur	19x6.50
Oakland V-8	Morse	Del-R	Del-R	Own	M-SM 3	MM	Own ½	3.90	M	Sag	S 54½	Inlox	Al-Z	28x5.50
Oldsmobile	Chain	Del-R	Del-R	Borg	M-SM 3	Un P	Own ½	4.54	Bendix	Sag	S 54½	Tryon	Alem	28x5.25
Packard 901-902	Morse	—	——	——	O-SM 4	—	Own ½	—	M	Own	S 60½	——	Bijur	6.50x19
Packard 903-904	Morse	—	——	——	O-SM 4	—	Own ½	—	M	Own	S 60½	——	Bijur	7.00x19
Peerless St. 8	Morse	Aut-L	*Aut-L	Rock	War-G-F 3	Spic	Sal ½	4.70	Bendix	Ross	S 56⅛	Rub B	Alem	29x5.50
Peerless Master 8	Morse	Aut-L	*Aut-L	Rock	War-G-F 3	Spic	Sal ½	4.45	Bendix	Ross	S 60	Rub B	Alem	31x6.00
Peerless De L.	Morse	Aut-L	*Aut-L	Rock	War-G-F 3	Spic	Sal ½	4.45	Bendix	Ross	S 60	Rub B	Alem	31x6.00
Peerless Custom 8	Morse	Aut-L	*Aut-L	Rock	War-G-F 3	Spic	Sal ½	4.45	Bendix	Ross	S 60	Rub B	Alem	31x6.50
Pierce-Arrow 43	Gear	Del-R	Del-R	Long	OwnF 3	Spic	Own ½	4.08	Bendix	Ross	S 60	Faf	Al-Z	19x6.50
Pierce-Arrow 41-42	Chain	Del-R	Del-R	Long	Own-F 3	Spic	Own ½	*	Bendix	Ross	S 61	Faf	Al-Z	18x7.00
Plymouth	Var	Del-R	Del-R	Rock	Own-F 3	Own	Own ½	4.33	H	War	S 53⅜	Tryon	Al-Z	19x4.75
Pontiac	Morse	Del-R	Del-R	Own	Own 3	MM	Own ½	3.90	M	Sag	S 54	Inlox	Al-Z	29x5.00
Reo Royale 8-35	Morse	Del-R	Del-R	Long	O-SM 3	Un P	Own ½	4.07	H	Ross	S 57½	Own	Far	6.50x18
Reo Royale 8-31	Morse	Del-R	Del-R	Long	O-SM 3	Un P	Own ½	4.07	H	Ross	S 57½	Own	Al-Z	6.50x18
Reo 8-21	Link	Del-R	Del-R	Long	O-SM 3	Un P	Own	4.42	H	Ross	S 56⅛	Tryon	Al-Z	17x6.00
Reo 6-21	Morse	Del-R	Del-R	Long	O-SM 3	Un P	Own	4.07	H	Ross	S 56⅛	Tryon	Al-Z	17x6.00
Reo Fly. Cloud 6-25	Morse	Del-R	*Del-R	Long	O-SM 3	Un P	Own ½	4.42	H	Ross	S 55⅞	Own	Al-Z	17x6.50
Studebaker Six	Chain	Del-R	*Del-R	Long	Own-F 3	Spic	Own ½	4.73	Bendix	Ross	S 54	Tryon	Alem	19x5.25
Studebaker Dict. 8	Var G	Del-R	*Del-R	Long	Own-F 3	Spic	Own ½	4.73	Bendix	Ross	S 54	Tryon	Alem	19x5.25
Studebaker Com. 8	Var G	Del-R	*Del-R	Long	Own-F 3	Spic	Own ½	4.73	Bendix	Ross	S 56	Faf	Al-Z	19x6.00
Studebaker Pres. 80	Var G	Del-R	Del-R	Long	Own-F 3	Spic	Own ½	4.31	Bendix	Ross	S 60	Faf	Al-Z	19x6.50
Studebaker Pres. 90	Var G	Del-R	Del-R	Long	Own-F 3	Spic	Own ½	4.31	Bendix	Ross	S 60	Faf	Al-Z	19x6.50
Stutz LA	——	Del-R	Del-R	Borg	Detr 4	Un P	Sal ½	4.75	H	Gem	S 60	Own	Bijur	19x6.00
Stutz MA	——	Del-R	Del-R	Long	Detr 4	MM	Tim ½	4.75	H	Gem	S 62¼	Own	Bijur	20x6.50
Stutz MB	——	Del-R	Del-R	Long	Detr 4	MM	Tim ½	4.75	H	Gem	S 62¼	Own	Bijur	20x7.00
Stutz DV 32	——	Del-R	Del-R	Long	Detr 4	MM	Tim ½	4.75	H	Gem	S 62¼	Own	Bijur	18x7.00
Willys 6-97-98 D	Chain	Aut-L	*Aut-L	Borg	Own-F 3	Spic	Own ½	4.60	Bendix	Own	*S 49¾	Tryon	Alem	19x5.00
Willys 8-80 D	Chain	Aut-L	*Aut-L	Borg	Own-F 3	Spic	Own ½	4.40	Bendix	Ross	S 56	Tryon	Alem	18x5.50
Willys-Knight 66 D	Chain	Aut-L	*Aut-L	Rock	Own-F 3	Spic	Own ½	4.18	Bendix	Ross	S 56	Tryon	Alem	18x6.00
Willys-Knight 95	Chain	Aut-L	Aut-L	Borg	Own-F 3	Spic	Own	4.89	Bendix	Gem	S	Tryon	Alem	19x5.00

KEY TO ABBREVIATIONS

Weight—†Austin standard 2 passenger coupe. **Hupmobile model H weighs 4,095 pounds, and model U 4,360 pounds. *Studebaker, 7 pass. sedan. *Willys 6-97D weighs 2,670 and the 98 D weighs 2,706 pounds.

Wheel Base—*Over all length of chassis instead of wheel base, which manufacturers refuse to give. **Essex, seven-passenger sedan available on 119-inch wheel base.

Engine Make—Con, Continental; Lyc, Lycoming, Hall, De Vaux-Hall Motors Corp.

Fan Belt Type—V, V-type; F, flat.

Thermostat—Bish-Bab, Bishop & Babcock; Dole, Dole Valve Co.; Chicago, Ill.; Ful, Fulton Co.; Pines, Pines Winterfront; Var, various makes.

Valve Arrangement—L, L head; H, horizontal; O, overhead; K, sleeve valve; LV, V-type L head.

*Air cooled. †Thermo syphon water circulation.

Compression Ratio—*Optional on the Auburn.

Piston Material—*Alum, aluminum with invar struts; Alum, aluminum alloy; CI, cast iron; S St, semi-steel.

Oil Purifier—Pur, Purolator; Wal, Wall; Han, Handy; AC, AC Spark Plug Company; Ste, Stewart-Warner; Ski, Skinner. *Using both Floato & Skinner.

Fuel Cleaner—AC, AC Spark Plug Co.; Gas, Gascolator; Ste, Stewart-Warner; Til, Tillotson; V-S, Van Sicklen.

Carburetor—Sch, Wheeler Schebler; Zen, Zenith; Mar, Marvel; Car, Carter; Str, Stromberg; DL Detroit Lubricator; Til, Tillotson.

Air Cleaner—AC, AC Spark Plug Company; AM, Air Maze; Han, Handy; Un, United; Til, Tillotson.

Front End Drive—Link, Link Belt; Tex, Texolite; Cel, Celeron; Diam, Diamond Chain; Morse, Morse Chain Company; Var, various makes of chains; Var-G, various makes of gears.

Ignition, Generator and Starter—Aut-L, Auto-Lite; Del-R, Delco-Remy; N. E., North East; *Nash-Indicates twin ignition. *Bendix starter used.

Clutch—Borg, Borg & Beck; Br-L, Brown-Lipe; Rock, Rockford Machine; Long, Long Clutch Company; Rus, Russell Mfg. Co.

Transmission—War G., Warner Gear Company; Detr, Detroit Gear; Mun, Muncie Gear; WC, Warner Corporation; D-SM—Detroit Synchro-Mesh; O-SM—Own, Synchro-Mesh; M-SM—Muncie, Synchro-Mesh. N.P.—New Process Gear Corp.

**Franklin Transcontinent models are equipped with both Warner and Detroit 3 or 4 speed gear sets according to body type.

F-Free Wheeling.

Universals—Un P, Detroit Universal Products Company; Spic, Spicer Manufacturing Corporation; MM, Mechanics Universal Joint Company.

Rear Axle—Col, Columbia; Sal, Salisbury; Tim Timken; N.P., New Process Gear Corp.; ½-Semi-floating; ¾-¾ floating; F-Full floating.

Ratio—Optional on the Auburn. *On Pierce Arrow 43, 137 in W. B. rear axle ratio is 4.42. On model 41 rear axle ratio is 4.42. On model 42 ratio is 4.23.

†The axle ratio varies with body types on Franklin models.

Brakes—H, hydraulic; M, mechanical; SD, steeldraulic; Bendix, Bendix Brake Corp

Steering Gear—Gem, Gemmer; Ross, Ross Gear and Tool Company; Sag, Saginaw; Say-B, Saylor-Beall Manufacturing Company; War, Warner; N.P., New Process Gear Corp.

Rear Springs—S, semi-elliptic; El, full elliptic; Cant, semi-cantilever; S-Tr, semi-transverse. *Rear spring length on Willys, 6-98D is 51 in.

Spring Shackles—Tryon, Willys-Morrow Company; Rub B, Rubber Shock Insulator Company; Faf, Fafnir Bearing Company; ERS, Eaton Rubber Bushings; Inlox—Inland Mfg. Co.

Chassis Lubricator—Alem, Alemite; Al-Z, Alemite Zerk; Bijur, Bijur Lubricating Corp.; Far, Farval.

LAWRENCE CONVALESCING

Newark, N. J., July 17.—J. K. Lawrence, sales manager of the Lawrence Motor Car Company, Auburn-Cord distributors, who has been ill for several weeks, is convalescing at Water Witch. J. Aldon De Rondo, Mr. Lawrence's assistant, is taking charge of sales during Mr. Lawrence's absence.

NEW $200,000 HIGHWAY TO CONNECT MASS. - N. Y.

Pittsfield, Mass., July 17.—Massachusetts is to build a stretch of bituminous macadam road to connect with a new strip of highway being built now by New York on the west side of Molasses Hill in Hillsdale, N. Y. The Macsachusetts project will be in South Egremont and will extend three and a quarter miles from the intersection of the Under Mountain Road from Sheffield and the Hillsdale Road. The construction will cost $200,000.

SPECIALIZED SERVICE

Buffalo, N. Y., July 17.—Joseph's Specialized Auto Service, under the management of Joseph S. Mistreett, has been formally opened to the public at 39 St. Paul St. The new plant specializes in sales and servicing of radiators, shock absorbers, batteries, carbureters and other automotive equipment, including a full line of accessories.

NOTICE

Please see the fifth column to the left of this advertisement giving steering gear information. Notice the outstanding Ross predominance. The actual figures are:

ROSS 34

FIRST Competitor 14

SECOND Competitor 12

THIRD Competitor 5

Build Their Own 10

There is only one CAM & LEVER Steering Gear

ROSS

Cam & Lever Steering

Insuring Wholesalers' Profits With Trucks

This report on economical truck operation in the wholesale field was prepared by the General Motors Truck Company, Pontiac, Mich., and is appearing in serial form in Automotive Daily News. Copies of this report in pamphlet form are now available at all General Motors Truck Company dealer and distributorships.

Although the wholesaler should constantly seek to build his volume within the limits of a profitable delivery area, time savings and greater concentration of deliveries actually mean, in the long run, that the wholesaler can expand his total trading area profitably. For by time savings and by more concentrated deliveries he will be able to lower his delivery cost for each customer.

The wholesaler who finds that his savings in lower delivery cost enable him to reach out for a larger trading area must plan his expansion carefully, however. Reaching out for a profitable new customer here and there at the fringe of the present trading area is likely to result in a large increase in delivery mileage without a corresponding increase in profits. By far the better way is to make a careful analysis of the present trading area and the best potential prospects in and around it. A map of each delivery zone, such as the one reproduced on this page, is a sound guide. Sales effort directed toward new business in new territories, then, should be guided by the following rules:

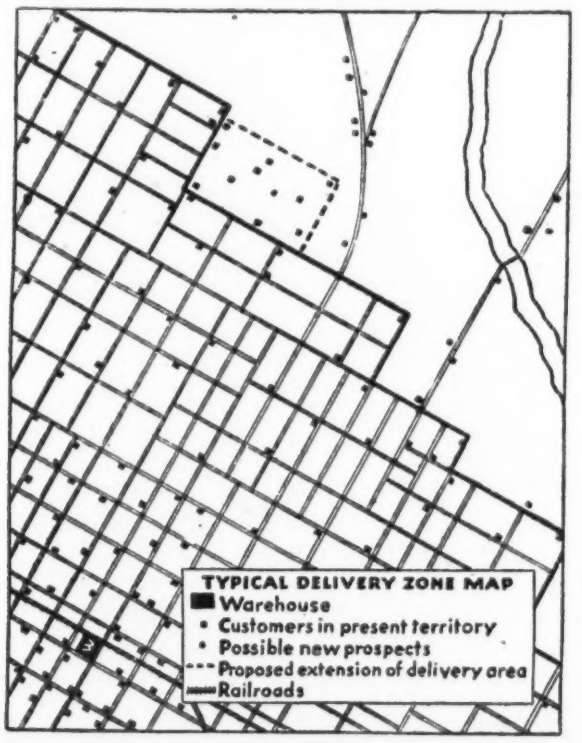
1. Select for expansion the area which offers the greatest number of potential prospects.
2. Select only a new area in which the type of retailer assures large-volume, profitable orders.
3. Select new areas which lie close to present areas and will tend to lower the total cost of each order delivered within that zone.

Plan for Profitable Sales

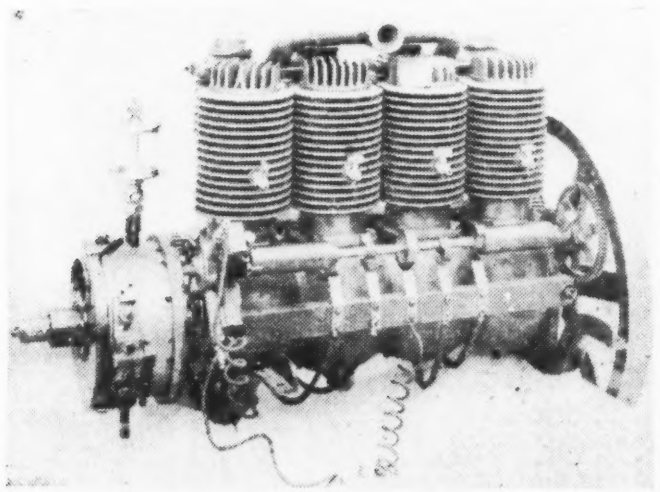
Profitable sales management for the wholesaler means more than simply bringing in new business. It means bringing in profitable business. And since profit on any individual order depends in a large measure on the cost of delivering the order, the sales and delivery departments should work hand in hand.

Well-directed sales effort, designed to increase the volume of present accounts and to get a maximum volume of business out of a limited delivery area, is bound to be profitable sales effort. So long as the wholesaler concentrates on this type of sales effort, steady, well-planned expansion can be undertaken with strong assurance of profit.

(TO BE CONTINUED.)



Original Franklin Engine



Celebrating its 30th anniversary, the H. H. Franklin Manufacturing Company displays the first Franklin engine, illustrated herewith. It developed 10 horsepower and propelled the vehicle in which it was installed at 30 miles per hour. Note the method of providing ignition by means of cams and spring strip contacts.

MORSE CHAIN SALES IN SECOND QUARTER SHOW 19% GAIN

Ithaca, N. Y., July 17.—Sales of the second quarter just ended by the Morse Chain Company, division of Borg-Warner Corporation, were 19 per cent. above those of the previous three months, it was announced today by C. S. Davis, president of the parent corporation.

Timing chains and sprocket contracts placed by large automobile manufacturers, as well as industrial orders for power transmission units, have been responsible for this substantial gain. During the month of June the company also received several orders from automobile manufacturers in Holland and England.

The principal products of the Morse Chain Company are timing chains and sprockets used as standard equipment on numerous popular makes of automobiles, as well as power transmission units for the marine and general industrial fields.

SPARKS from DETROIT

(Continued from Page 2)

Lincoln a chance to get a more wide-spread distribution. As it is now, they point out, Lincoln is shut out of smaller cities because of the scarcity of prospects for such a high-priced article in the little places. With Lincoln offering a low-priced eight to help out, it would be possible to set up more dealerships through having a high and low. It is said such an eight would not be called a Ford and that if it does materialize it will be about October.

Take it or leave it, that's the gossip.

* * *

SINCE writing the story of Walter Chrysler presenting Henry Ford with a Plymouth, I hear on good authority that President W. S. Knudson of Chevrolet is driving a car of the same make. Which makes me wonder if he got it the same way Ford is reported to have secured his Plymouth.

IS THIS THE BUSINESS OPPORTUNITY YOU HAVE BEEN SEEKING?

The rewards of the automobile business are going more and more to the dealer who is organized on the right basis — who has a known field of prospects to draw from — and who represents a line of cars of universal desirability.

This is the type of modern business opportunity that Cadillac offers in extending the Cadillac-La Salle franchise to a limited number of additional communities.

These communities have been carefully selected as to their profit possibilities and, in every case, may be depended upon to provide the right kind of set-up for an active, enterprising dealer. In addition, the Cadillac-La Salle dealer who obtains a franchise in any of these communities has four lines of the finest and most desirable automobiles that Cadillac has ever built — the La Salle V-8, the Cadillac V-8, the Cadillac V-12 and the Cadillac V-16.

Not only are these cars outstanding values, but, taken together, they constitute the most complete coverage of the fine-car field in automotive history — adding more than 40,000 prospects to the original broad and active Cadillac market.

If you are interested in a dealership that is strictly in keeping with modern merchandising trends, in a community which has been carefully surveyed for business potentialities, write to the Cadillac Motor Car Company, Detroit, Michigan.

CADILLAC · LA SALLE